

電腦世界

Canada's Leading Computer Journal

Computer Player™

North America's bilingual computer information source

Volume 4 Number 12

December 1995

FREE

Stuff for Christmas

Cold water and clocks

Inside the motherboard

Pentium shopping

4 tools to tweak Win95

Rocking & Rolling with your PC

The next level for air guitarists

The lowdown on ISDN

UNLIMITED INTERNET

\$19.50

FREE
Web
Page



FREE BOOK!
1st. Qty. W/ Sign Up

GET ON THE

INFO HIGHWAY *NOW*

- ✓ NO Setup Fee
- ✓ Direct Unlimited Access
- ✓ No Hourly Charges
- ✓ Free Access Software
- ✓ Free Technical Support
- ✓ Personal E-Mail Address

654-6088

*some restrictions may apply



Internet Gateway Corp.

Web site: <http://www.intergate.bc.ca>



Merry X'mas and
a Happy New Year!

NU-AGE

COMPUTER PLUS

Affordable
Computer &
Communication
Products

486DX4-100 AMD PCI

4 MB RAM exp. to 128 MB RAM
1.44 MB floppy drive, 256K cache
32 bit EIDE and floppy controller
2 serial / 1 parallel ports
Mini-size 13" case with 200 W P/S CSA
635 MB IDE mode 3 fast hard drive
101 key enhanced keyboard
14" Green SVGA N/I monitor
Cirrus Logic w/1MB Dram video card
Nu-age 2 button mouse

\$1268

Lease available

486DX4-100 INTEL PCI

4 MB RAM exp. to 128 MB RAM
1.44 MB floppy drive, 256K cache
32 bit EIDE and floppy controller
2 serial / 1 parallel ports
Mini-size 13" case with 200 W P/S CSA
635 MB IDE mode 3 fast hard drive
101 key enhanced keyboard
14" Green SVGA N/I monitor
Cirrus Logic w/1MB Dram video card
Nu-age 2 button mouse

\$1288

Lease available

Pentium 75 / 90 / 100 / 120

ASUS Triton motherboard, PCI
8MB RAM exp. to 192 MB
1.44MB floppy drive, 256 K cache
Built-in 32 bit EIDE and floppy controller
2x16550 UART serial, 1 bi-directional parallel
Mid-size 19" case with 200 W P/S CSA
850 MB IDE hard drive
101 enhanced keyboard
14" Green SVGA N/I monitor
Cirrus Logic w/1 MB Dram video card

\$1738 / 1838 / 1918 / 1998

Lease available

Professional Pentium 100/120/133

Acus Triton motherboard, PCI
16MB RAM exp. to 192 MB
1.44MB floppy drive, 256 K cache
Built-in 32 bit EIDE and floppy controller
2x16550 UART serial, 1 bi-directional parallel
Mid-size 19" case with 200 W P/S CSA
1.2 GB IDE hard drive
101 enhanced keyboard
15" FS L.R. SVGA monitor
ATI Mach 64 w/2 MB Dram video card

\$2498 / 2598 / 2888

Lease available

Networking Products

LANtastic AI version 6.0	\$105
LANtastic Starter kit	\$335
Windows Workgroup	\$169
Windows Workgroup ADD-ON	\$59
Novell Netware 3.12 (5 user)	\$900
Novell Netware 3.12 (25 user)	\$2950
NE2000 Ethernet network card	\$69
NE2100 Ethernet network card	\$160
CNET CN600E Ethernet card	\$70
Compex 16 bit Arcnet card	\$89
Intel Ethernet Express 16 bit Pro	\$139
D-link Ethernet pocket adaptor	\$245
Xircor Ethernet pocket adaptor	Call
D-link Ethernet concentrator	\$310
Arcnet 93 Ohm Terminator	\$5
Ethernet 50 Ohm Terminator	\$5

Monthly Special

Canon BJC 4000
Color Inkjet Printer **\$399.00**

Computer Problems ?

Upgrade 386's 486's, Monitor Repair,
Hard drive upgrades

Notebook

JetBook Symphony 486DX4-100

• Dual Scan Color • 250MB HD **\$3075**
• PCMCIA Type III • 8MB RAM
• Trackball mouse • Built in 16bit Sound Card
• Upgrade to Active Color \$750
• Upgrade to Pentium 75 \$450
• Upgrade to 16MB RAM \$775
• Upgrade to 514 MB Hard drive \$275

SMARTBOOK SoundPro DX4-100

• Dual Scan Color • 8MB RAM **\$2675**
• 250MB Hard Drive • PCMCIA Type III
• Trackball mouse • Built in 16bit Sound Card
• Upgrade to Active Color \$750
• Upgrade to CD Version \$1100
• Upgrade to 16MB RAM \$775
• Upgrade to 514 MB Hard drive \$275

Explorer Pentiumdia

MM5000 DX2-66 \$2290

• 4MB • 250MB H/D • 16 bit sound card
• PCMCIA • Trackball
• Upgrade to dual scan \$690.00
• Upgrade to 540 MB H/D \$299.00
• Upgrade to Pen base Mono LCD \$210.00
• Upgrade to Pentium \$call

We support and service:



Trained
and tested
to provide
superior
NetWare
Support.

Complete IBM and Macintosh
network management;
E-mail & FAX gateways,
Remote Access, Backup,
Training ...

We support and service:

Novell NetWare
Windows For Workgroup
LANtastic
Apple LocalTalk ...

We're Keeping Up with Your Networking Needs

Multi Media World

Panasonic CD ROM 562 B	\$88	Sound Blaster 16	\$109
NEC 6XE Ext. SCSI CD ROM	\$799	MAD 16bit Sound Card	\$89
NEC 6XI Int. SCSI CD ROM	\$689	Phone Blaster 14.4	\$339
Mitsumi 4X IDE CD ROM	\$249	Pro Sonic SCSI 16bit	\$129
Sony CDU-76E 4X EIDE CD ROM	\$319	Garvis Ultra Sound Max	\$219
		Altec Lansing Speakers	from \$99

ASI CD-ROM Package

Mitsumi 4x speed CD
SB 16 bit sound card
M/S Encarta Package
2 shield speakers



\$399.00



BUSINESS HOURS:
MON-FRI 9:00-6:00
SAT: 11:00-5:00
FREE PARKING AT REAR

ALL SYSTEMS ARE CSA APPROVED,
2 YEAR PARTS & LABOUR WARRANTY.
ABOVE PRICES REFLECT 2% CASH DISCOUNT.
PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

MONITORS

ACER 14" N/I	\$349
ACER 15" N/I DIGITAL	\$499
ADI 4Gp 15" L.R. N/I 28	\$540
ADI 17" 5EP	\$890
COMPUTARTNER 15" N/I L.R.	\$440
MEGA IMAGE 15" FS	\$419
MITSUBISHI 15" DIAMOND PRO 28 DP N/I	\$660
MITSUBISHI 17" DIAMOND PRO 17 TX	\$1650
NEC XV 15"	\$680
NEC XE15 15"	\$810
PROVIEW 14" N/I L.R.	\$310
PROVIEW 15" N/I L.R. F/S	\$419
SONY 15 SF 15" N/I	\$699
SONY 17 SF 17" N/I L.R.	\$1399

PRINTERS

BROTHER HL641 300DPI	\$579
BROTHER HL660 600DPI	\$805
CANON BJ30 BUBBLE JET	\$330
CANON BJC 4000 COLOUR BUBBLE JET	\$419
FUJITSU DL1150 COLOUR	\$329
FUJITSU DL1250 COLOUR	\$445
HP 660C INKJET COLOR	\$560
HP 5P LASERJET	\$1290
HP LASERJET 4 PLUS	\$2020
HP LASERJET 4M PLUS	\$2780
OKIDATA OL400E LASER	\$489
RAVEN 2407 24 PIN COLOR UPGRADABLE	\$289
RAVEN 2405 24 PIN	\$229
RAVEN 2465 24 PIN WIDE CARTRIDGE	\$485

MODEMS

U.S. ROBOTIC 14.4 SPORTSTER INTERNAL	\$129
U.S. ROBOTIC 14.4 SPORTSTER EXTERNAL	\$155
U.S. ROBOTIC 28.8 SPORTSTER INTERNAL	\$259
PRACTICAL PERIPHERALS EXT. 14.4 FAX	\$159
ZOLTRIX 14.4 INT. FAX; VOICE MAIL	\$89

FLOPPY DRIVES

1.2MB FLOPPY DRIVE	\$63
1.44MB FLOPPY DRIVE	\$45

VIDEO CARDS

512K SVGA VIDEO CARD	\$52
TRIDENT 8900 SVGA 1MB	\$89
ATI GRAPHICS WINBOOST 64 1 MB DRAM	\$189
ATI GRAPHICS WINBOOST 64 2MB DRAM	\$259
ATI GRAPHICS WIN TURBO Mach 64 2MB VRAM	\$369
DIAMOND STEALTH 64 PCI 2MB VRAM	\$369
DIAMOND VIPER SE 2MB VRAM	\$439
DIAMOND PCI VIPER PRO 2MB VRAM	\$569

HARD DRIVES

QUANTUM 850 MB 12MS 128K CACHE	\$279
QUANTUM 1.08GB 12MS 128K CACHE	\$329
W.D. 635MB 10MS 64K CACHE	\$249
W.D. 850MB 10MS 64K CACHE	\$289
W.D. 1GB 10MS 64K CACHE	\$379
W.D. 1.2GB 10MS 64K CACHE	\$399

RAM

1MB SIMM 70NS	\$46
4MB SIMM 70NS 30PIN	\$169
4MB SIMM 70NS 72PIN	\$169
8MB SIMM 70NS 72PIN	\$339

TAPE BACKUPS

Colorado 350MB Tape Backup Int.	\$189
Colorado 700MB Tape Backup Int.	\$279
Conner 800 MB Tape Backup Ext.	\$459
Conner 800 MB Tape Backup Int.	\$269

SOFTWARE

MS WINDOWS 95 OEM (WITH SYSTEM) CD VERSION	\$149
WORDPERFECT 6.0 FOR WINDOWS	\$369
MICROSOFT WORKS FOR WINDOWS	\$120
MICROSOFT PUBLISHER FOR WINDOWS	\$158
LOTUS 123 VERSION 5 FOR WINDOWS	\$369
PC ANYWHERE FOR WINDOWS	\$169

#6-1128 WEST BROADWAY, VANCOUVER, B.C. V6H 1G5 TEL: (604) 739-0883 FAX: (604) 739-2027

All I want for Christmas is an IPC



**850 MEGABYTE
1.08 GIGABYTE
HARD DRIVE
OPTIONS AVAILABLE**



Designed for
 Microsoft
Windows 95



IPC Multimedia System Standard hardware

- Intel Pentium processor
- 8MB RAM
- Intel Triton chip set
- 530MB hard drive • 1.44 floppy
- On-board PCI IDE controller with high speed serial & parallel ports
- 1MB PCI SVGA video
- 14.4 Voice/fax/data modem
- 101 keyboard
- Windows 95 pre-loaded (manuals included)
- Collection of software titles
- Mouse & mouse pad
- 3 year parts & labour warranty
- First year on-site service
- Monitor extra

Multimedia hardware

- QUAD speed CD ROM
- 16-bit sound card
- Amplified external speakers

IPC CD/FX Multimedia Series

← YOUR CHOICE OF SOFTWARE BUNDLES! →

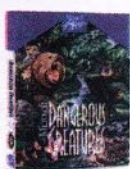
IPC MX•1 Integrated Multimedia



Microsoft Golf



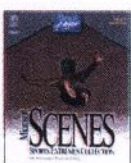
Microsoft Money



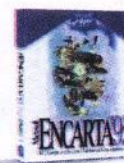
Microsoft Dangerous Creatures

Software included†

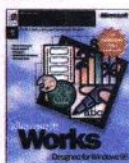
- Microsoft Encarta 95 - CD
- Microsoft Works 95 - CD (latest 32-bit application)
- Microsoft Dangerous Creatures - CD
- Microsoft Entertainment Pack™
- Microsoft Golf - CD
- Microsoft Money - CD
- Microsoft Scenes™



Microsoft Scenes



Microsoft Encarta 95



Microsoft Works 95



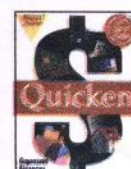
Microsoft Entertainment Pack

Software included†

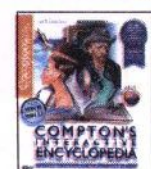
- Compton's Home Remedies - CD
- Compton's Interactive Encyclopedia '96 - CD
- The Marilyn Monroe Files Detective Game - CD
- The Let's Learn Series (Ages 3-12) - CD
- Slam City full motion basketball game - CD
- Intuit Quicken Special Edition™
- Novell PerfectWorks™
- Novell Grammarik™



Novell Perfect Works + Grammarik



Intuit Quicken



Compton's Encyclopedia '96



**PERSONAL
COMPUTERS**

90MHz and
120MHz systems
also available



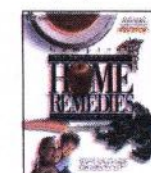
Let's Learn Series, Version 2



The Marilyn Monroe Files



Slam City Basketball



Compton's Home Remedies

CD/FX•575

- Pentium 75MHz processor
- 530MB hard drive

\$1,799

Only \$72 per month*

CD/FX•5100

- Pentium 100MHz processor
- 530MB hard drive

\$2,049

Only \$84 per month*

MX•575

- Pentium 75MHz processor
- 530MB hard drive

\$1,799

Only \$72 per month*

MX•5100

- Pentium 100MHz processor
- 530MB hard drive

\$2,049

Only \$84 per month*

IPC Personal Computers are built in Canada by: 3D Microcomputers, 150 Bullock Drive, Markham, Ontario L3P 1W3 Fax: 905.472.6633 The Intel Inside Logo and Pentium are trademarks of Intel Corporation. The IPC logo is a trademark of 3D Microcomputers. Windows and the Windows 95 logo are trademarks of Microsoft Corp. System not necessarily as shown. Regional price variances may apply. Prices and configuration subject to change without notice. *O.A.C. based on 36 month term, first and last payments in advance with a 5% buyback option

IPC NOTEBOOKS AND PERSONAL COMPUTERS ARE AVAILABLE FROM THESE FINE COMPUTER DEALERS ACROSS BC:

Abbotsford Pacific Office N Things 604.864.0865
Burnaby Dextron Enterprises 604.433.9866
Campbell River Odyssey Computer Services 604.287.3311
Coquitlam Moody Computers 604.941.9105
Delta Strider Computers 604.543.4200

Nelson Nicolson Computer Supply 604.354.4666
Port Hardy Joyful Sound 604.949.7771
Revelstoke The Computer Room 604.837.5888
Saltspring Island ... HNW Design Computers 604.537.1101
Williams Lake Information Mgt. Service 604.392.4675

index of advertisers

COMPANY NAME	PHONE	PAGE	COMPANY NAME	PHONE	PAGE
3J COMPUTERS	(604)323-9859	5	MAPLE-OAK COMPUTER	(604)681-3770	35
ABLE RENTALS	(604)521-6904	67	MEDIA COMMUNICATIONS	(604)687-1268	66
ACP MARKETING	(604)278-2811	22	MEGA TONER	(604)980-7197	66
AE ELECTRONICS CORP.	(604)279-8867	13	MEMORY HOUSE	(604)821-1178	66
AGFA	(416)241-1110	51	MICROCONCEPT	(604)730-8183	10,11
ALOUETTE LASER INC.	(604)291-8442	59	MICROSEA SYSTEMS	(604)273-9233	43
ATECH COMPUTERS	(604)877-1812	29	MIND LINK	(604)668-5000	58
ATECH COMPUTERS	(604)877-1863	29	MINITRONICS	(604)278-0783	67
BIS	(604)688-8916	63	MORTIMER ONLINE	(604)294-2995	59
BMP	(604)739-6588	32	MYCOM COMPUTER	(604)739-2827	18
BYTE & SOUND COMPUTER	(604)589-0388	8	N&K COMPUTERS	(604)325-9258	33
CC TECH	(604)876-7983	26	NANTRON SYSTEMS	(604)253-1588	40
CDIS	(604)298-5400	40	NICER COMPUTER & SERVICES	(604)377-4982	15
CE OUTLET	(604)278-2633	16	NPSNET	(604)272-2624	61
CLOVERDALE RACEWAY	(604)576-9141	68	NU-AGE COMPUTERS PLUS	(604)739-0883	3
CODY'S	(604)464-5515	67	PC AUCTION	(604)241-8555	21
COMPU 2000	(604)436-2333	14	PC CONNECTIONS	(604)270-4883	28
COMPU CAN	(604)872-6066	34,62	PC PLACE	(604)572-8324	24
COMPUTER CLEARANCE	(604)879-7776	44	PC TOP	(604)879-3232	21
COMPUTER LINK	(604)857-4919	63	POWERSOFT	(604)582-7488	61
COMTEX MICROSYSTEMS	(604)273-8088	17	PRIMEX COMPUTERS	(604)438-8900	3
COPAL COMPUTER	(604)351-7236	34	PROFORM SOFTWARE	1-800-661-1961	46
CREATIVE COMPUTER	(604)318-0382	37	PROTRON COMPUTER	(604)432-1177	67
CRESCENT CITY SOFTWARE	(604)739-1714	49	QUANTUM TECHNOLOGIES	(604)244-5952	70
DATAHOME	(604)278-3584	21	RECALL	(604)737-4325	42
DATAWORLD COMPUTERS	(604)323-0768	27	RES ONLINE	(604)322-2194	50
DERAN COMPUTER	(604)231-9630	9	ROM CITY	1-800-766-2489	31,42
DIGITAL RAIN	(604)543-3025	55	ROMWARE	1-800-944-3369	23
DISCOUNT SOFTWARE CLUB	(604)821-1108	15	RPC ELECTRONIC	(604)255-1192	24
ECL	(604)266-1124	67	SAMCO PRINTERS	(604)683-6991	69
EMPAC	(604)821-0177	71	SCEPTRE TECHNOLOGIES	(818)369-3698	20,53
EMPAC	1-800-TO-EMPAC	71	SOFTBANK COMDEX	(617)449-6600	54
EROTICA EAST	011 852172 94 9194	66	SPARKLE	(604)435-2338	67
FUSION ELEC.	(604)688-9819	27	SPECS CUSTOM SOFTWARE	(604)882-9086	19
GAMES LOVERS	(604)270-7898	15	STRONG COMPUTERS	(604)739-0438	22
GO! ONLINE COMMUNICATIONS	(604)540-0271	57	SUNNET IMAGE	(604)437-3388	26
HOLLY COMPUTERS	(604)279-2580	48	SUPER-BYTE	(604)463-8733	32
IBC COMPUTER	(604)876-8855	7	SYSTEM PRO	(604)583-9977	12
IC TECHNOLOGY	(604)681-7057	42	TANGENT COMPUTERS	(604)737-9918	31
ICI INFOWAVE	(604)273-1368	30	TOM LEE MUSIC	(604)685-8471	45
INDEPENDENT POWER CORP.	(604)931-7521	47	TRICERA COMPUTER	(604)733-5702	6
INFO MEDIA	(604)739-5889	60	TSING HUA COLLEGE	(604)298-1908	36
INSTANT SOLUTIONS	(604)682-8981	63	UNIVELL MICROSYSTEMS	(604)276-9986	12
INTERACTION CD	(604)987-3472	35	V-COM COMPUTER	(604)437-8818	25
INTERNET DIRECT	(604)488-1900	39,41,43,45,47,72	VAN. INTERNET PUBLISHING	(604)924-0750	60
INTERNET GATEWAY	(604)654-8088	2	VANCOUVER ANIMATION	(604)881-4024	39
INTERNET LIGHTSPEED	(604)482-1190	61	VANCOUVER FILM SCHOOL	(604)685-5808	38
INTERNET PORTAL	(604)257-9400	52	VANCOUVER WEBPAGE	(604)270-8285	67
INTERTECH	(604)872-7337	18	VARSITY COMPUTERS	(604)222-2326	33
IPC	1-800-567-7413	4	WARREN DENNY	(604)737-2133	67
LAPRO MARKETING	(604)244-7798	9	WEB LAB	(604)730-0021	67
LINOPLUS	(604)879-6803	49	WEST-CAN EXPOSITIONS INC.	(604)857-7005	67
LYNX INTERNET	(604)331-2511	59	WISECOM	(604)327-8567	6
MAC STATION	(604)466-0190	49	ZAD-ALL-WIN WORKSHOP	(604)436-0333	64
MACKIE ENT.	(604)270-3386	6	ZED-DATA SYSTEMS	(604)473-9331	51



Cover Story

52 Stuff for Christmas

by Alan Zisman

GAME REVIEW

39 New Heights for On-screen Gambling - Review of Celebrity Poker

by David Anderson

43 Games for your Christmas Stocking

by Matthew Durand

DATABASE

40 Database Developments

by John Hamm

PLAYGROUND

42 Rocking & Rolling with your PC - The next level for air guitarists

by Alan Zisman

SOFTWARE REVIEW

44 Three Programs and a Freebie Enhance Win95

by Alan Zisman

INTERNET

50 The Lowdown on ISDN

by Sean Eltrington

60 Getting hits on the 'net

by JD Miller

NEWS

6 PC Pulse

49 Mac News

HOW TO

22 Buying a Pentium

by John A. Hosh

HANDS ON

27 Desktop Publishing Tips:

Corel Photo-Paint 5.0

by Swee-Sim Tan

SOLUTIONS

28 Q & A: Pentium Pro

NEW USERS

34 Gold Water and Clocks

Inside the motherboard

by Rick McLaughlin

Next Issue ...

Focus-On: The Year in Review

Distribution Date: Dec. 15, 95

Ad. Closing Date: Dec. 5, 95

Please call for advertising information: (604) 739-8266

BOXING MONTH CRAZY SALE

Telelink MyPager

- New NEC Replay Numeric Pager
- Free Activation
- One Month Free Airtime
- One Month Free Voice Mail
(Custom greeting & 4 hour storage)
- Batteries Included

\$8.25 per month
Reg. ~~\$89.95~~ **\$69.95**

SPECTACULAR MODEM DEALS

MONTHLY SPECIAL	
USR 28.8 Int. Fax/Modem.....	\$245.95
14.4 Int. S/R Fax/Modem	\$ 59.95
14.4 Int. Voice Fax/Modem	\$ 79.95
Zoltrix 28.8 Int. S/R Fax/Modem	\$169.95
USR 14.4 V.32 W/V.42 Int. Fax/modem	\$118.95

HOT MONITOR DEALS

N. I. 14" SVGA .28	\$275.95
SONY 15" S. F. 25	\$659.95
MAG 17" DF17F .26	\$889.95

HOT PRINTER DEALS

Brother HL-660 Laser	\$689.95
Epson Stylus IIs color 720dpi	\$449.95
Raven 9pin RP9100	\$189.95

DRIVE SPECIALS

850MB HARD DRIVE.....	\$255.95
1.09GB HARD DRIVE.....	\$299.95
1.2 GB HARD DRIVE.....	\$339.95
1.44MB FLOPPY DRIVE	\$ 34.95
1.2MB FLOPPY DRIVE	\$ 59.95

INTEL PENTIUM 100MHZ

Intel Pentium-100 w/256k cache, Zip, Flash, Triton
8MB RAM, 72pin, 70ns
540MB EIDE Hard Drive, 1.44MB FD
PCI Enhanced IDE (mode 384) w/16550x2
1 Enhanced Parallel Port (Bi-Directional)
Trident PCT1 64bit 9440 Video Card
15" CSA Tower Case w/200w Power Supply
101 Enhanced Keyboard & 2B-Mouse

*** **\$1389** ***

SIMM SPECIAL

4MB SIMM 72PINS.....	\$163.95
8MB SIMM 72 PINS.....	\$329.95

CDROM SPECIAL

PANASONIC 2x CD-ROM....	\$ 74.95
PANASONIC 4x CD-ROM....	\$185.95
TOSHIBA 4x CD-ROM	\$195.95

WE'LL BEAT ANY PRICE

** SPECIAL ** 486 DX2 - 80

4MB 72pin RAM(Max. 128M)
supports LBA. Green, DX4-100, P24T/D
1.44MB Fujitsu floppy drive
540mb EIDE 12ms 256k Hard Drive
13" Tower w/Led & 200w P.S.
32-bit VESA controller w/2s, 1p, 1g
32-bit VESA SVGA 1MB
101 keys Enh. keyboard
Media mouse w/pad

REALLY SPECIAL PRICE

*** **\$769** ***



3J COMPUTERS

電腦工作室

5305 Victoria Drive, Vancouver, BC, V5P 3V6
Tel:(604)323-9859, 323-9815 Fax: 323-1157
Internet E-Mail address: jane@direct.ca
Bus. hours: Mon-Sat 10am-6pm
All listed prices reflect cash discount. Price subject to changes without notice.

MACKIE ENTERPRISES LTD.

Getting more and more

Multi-Media Mini Speakers
Tower Cases, Power Supplies
EXT SCSI Case & SCSI/IDE HD Removable Rack
Focus, Sejin and Unikey Keyboard
SVGA Monitors
Gigabyte Motherboard
PC System & Upgrade
PC Accessories: CPU Fan, Mouse etc.

Coming soon ...

PCI SVGA w/MPEG and full function MPEG decoder Card.

Please call for details

Mackie Enterprises Ltd.

#180-12868 Clarke Place, Richmond, B.C. V6V 2H1
Tel: (604) 270-3386 Fax: (604) 270-2289

Tricera Computer Centre

203 1836 West 5th Avenue at Burrard Street Phone 733-5702
EPSON Authorized Warranty Service - Supplies - Sales

EPSON ES1200C Scanner



\$1699

30 Bit Color

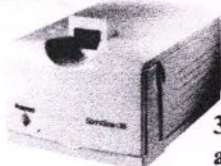
EPSON Stylus Color Pro XL



Full Bleed
11 x 17
13 x 19
Paper
Size

\$2300

\$2250



Agfa Arcus 36 Bit Scanning

Iomega Zip Drives

35mm Slides
and negatives

Polaroid SprintScan35 30 Bit



\$295

Scanner Rental

High resolution 35mm slide, transparency,
& photo scanners for only \$20 per hour.
Pentium or Power Mac Workstation
Iomega Zip Drive
Reservations recommended

4 x 5
Wacom
Art Pad II
\$230

Netscape Reduces Server Software

Netscape Communications Corp. has sharply cut prices of its server software aimed at companies looking to do business on the Internet.

The publisher has dropped the price of its:

- Netscape Commerce Server 1.12 for Unix from US\$5,000 to \$2,995.
- Microsoft Windows NT Commerce Server from US\$2,995 to \$1,295.
- Netscape Communications Server 1.12 for Unix from US\$1,495 to \$1,295.
- The NT Communications Server from US\$795 to \$495.

Atri Chatterjee, director of server product marketing, told the wire service, "Today's aggressive pricing moves will help to further accelerate the adoption of our high performance, industrial-strength servers and security technology, creating a ready platform for a host of online applications."

Intel Offers Faster Pentium

A new 120MHz Pentium microprocessor has been unveiled by Intel Corp., which says this is the fastest microprocessor available for notebook computers. The Reuter news service quotes Intel as saying the processor contains 3.3 million transistors and is especially small, making it possible for systems to deliver the highest level of performance with very low power consumption for long battery life.

Cyrix Adds Faster 5x86 CPU

Cyrix Corp. has added a second member to its 5x86 processor family—a 120 Mhz version.

The chip maker, based in Richardson, Texas, says the 5x86 microprocessor offers performance exceeding that of a 90MHz Pentium CPU. Cyrix is claiming a Winstone 95 performance rating of 150.4 on a 120 MHz 5x86 processor-based system.

Acer, AST Computer, CompuTrend Systems, CTX, Epson, FutureTech, MicroExpress, Sharp and Peacock in Germany are among the first PC manufacturers to design the 5x86 into notebook and desktop systems.

Cyrix says the 120MHz 5x86 processor is sampling now, with production quantities expected in November. The chip is priced at US\$160 in 1,000-piece quantities.

Novell to Sell WordPerfect

Just 16 months after buying out the word processing giant for \$855 million in a bid to wrest a bigger share of that market from Microsoft Corp., Novell Inc. now says it will sell most of WordPerfect Corp. along with other parts of its office applications software business.

Analysts say this is a major change in Novell's marketing plan, turning away from what has been deemed its losing strategy in the word processing and spreadsheet businesses.

Novell now plans to concentrate on its industry-leading products for networking PCs

WISECOM **CHRISTMAS CRAZY SALE**
 Hardware-Software-Upgrading-Networking-Programming-Consulting-Repairing

BERRY Computer BPC586-i133Mhz ▶ \$1,758 BERRY Computer BPC586-i120Mhz ▶ \$1,508 BERRY Computer BPC586-i100Mhz ▶ \$1,418 BERRY Computer BPC586-i90Mhz ▶ \$1,348 BERRY Computer BPC586-i75Mhz ▶ \$1,228	586 System Features Intel Pentium 75/90/100/120/133 CPU Intel TRITON Chipset MB w/ 256k Cache 8 Megabyte Memory RAM 540 Megabyte Enhanced IDE Hard Drive 3.5" (1.44MB) Floppy Drive PCI Bus Architecture :: PCI Video Display w/ 1MB DRAM PCI Enhanced IDE Controller w/ 2 x 16550 UART Super IO Tower-Case (13") Display & 200WPS 101-Enhanced Keyboard MS Compatible Mouse (3B)
2 Year Parts & Labour BERRY Computer BPC486-a120Mhz ▶ \$908 BERRY Computer BPC486-a100Mhz ▶ \$883 BERRY Computer BPC486-a80Mhz ▶ \$823 BERRY Computer BPC486-a66Mhz ▶ \$808	486 System Features AMD 486 DX2-66/80 DX4-100/120 CPU VLB-ISA SystemBoard w/ 256k Cache 4 Megabyte Memory RAM 540 Megabyte Enhanced IDE Hard Drive 3.5" (1.44MB) Floppy Drive Vesa-Local Bus (32) Architecture :: VLB Video Display w/ 1MB DRAM VLB Enhanced IDE Controller w/ IO Tower-Case (13") Display & 200WPS 101-Enhanced Keyboard MS Compatible Mouse (3B)
2 Year Parts & Labour Printers/Modem ▶ Brother, Canon Hard Drive ▶ WD, Seagate ... Upgrading ▶ 486, Pentium ... Repairing ▶ Computer ... Memory RAM ▶ 30pin, 72pin Artwork Designs	Special Products 2X DS / 4X QD CD-ROM Drive Sound Blaster 16 Stereo SoundBoard Deluxe 30Watts Amp. Speaker w/ Vol. \$185.00 / \$288.00 Microsoft Home/Family CD-Titles MS Encarta 95, MS Works, MS Money, MS Golf, Dangerous Creature, Best of Entertainment Package \$85 1.44MB Floppy Disk (10pcs) \$4.39 FAX / MODEM (Internal) 14.4 Fax / Modem \$64.91 28.8 V.34 Fax / Modem \$179.92 Windows 95 w/ system (full) \$148.00 Microsoft Ver 2.0 J-Mouse \$35.00
486 NoteBooks 486 NoteBooks 486 NoteBooks JETBOOK Symphony DX4-75, 8MB Ram, 256MB Hard Drive Vesa-Local-Bus, 16 Bit SoundChip DSTN Color/TFT Color \$3095/\$3999 SMARTBOOK SoundPro DX4-75, 4MB Ram, 256MB Hard Drive DSTN Color/TFT Color \$2599/\$3499	SCEPTRE (Dual Scan Color) SX-33, 4MB Ram, 340MB Hard Drive \$1565 S1000 Series w/ Sound Chip Built-In, Spk... DX2-66, 8MB Ram, 340MB Hard Drive \$2599 DX4-100, 8MB Ram, 340MB Hard Drive \$2869 Vesa-Local-Bus, SoundChip, Spk, TrackBall Call for Monochrome, DSTN Color, TFT Color

WISECOM TEL: (604) 327-8567 FAX: (604) 327-8217
 (NEAR FRASER ST. & 41-43 AVE)
 5766 FRASER STREET, VANCOUVER, BC, V5W 2Z5.

Computer Parts Centre

Mail order and upgrades are welcome!

AMD DX4-100 System

- * Gigabyte PCI AMD-DX4-100 System
- * 256K Cache Motherboard
- * 4 MB 72Pin SIMM
- * 1.44MB High Density Floppy Drive
- * Western Digital 850MB Hard Drive
- * PCI Enhanced control W/fast S.Port
- * PCI IMB SVGA Card (exp. 2MB)
- * 14" NI 1024*768 SVGA LR Monitor
- * Sejing 101 Enhanced Keyboard
- * Logitech MouseMan w/ pad
- * CPU Heatsink & Cooling Fan

\$1,299.00

Intel Pentium PCI Systems

- * GIGABYTE Motherboard with 256K Cache
- * 8 MegaByte 72Pin SIMMs
- * 1.44MB High Density Floppy Drive
- * Western Digital 850MB Hard Drive
- * PCI EIDE Controller 16550 2S/1P
- * ATI or Diamond PCI 64bit
- * 1MB SVGA Card, (exp. 2MB)
- * 15" NI 1280*1024 SVGA LR Monitor
- * Fujitsu 101 Enhanced Keyboard
- * Logitech MouseMan w/Pad
- * CPU Heatsink & Cooling Fan

P - 75	\$1945
P - 90	\$2049
P - 100	\$2149
P - 120	\$2299
P - 133	\$2549



Memory, CPU & Motherboards

(Build in EIDE on PCI Motherboard)

486 VL-VESA	\$155
GIGABYTE 486 PCI	\$169
GIGABYTE 586 Pentium PCI	\$265
1MB 30 Pin	\$55
4MB 72 Pin	\$175
8MB 72 Pin	\$365
16MB 72 Pin	Call
EDO RAM	Call

Please call for updated CPU pricing



Multimedia

Teac 4X CD-ROM Drive AT Type	\$205
Teac 6X CD-ROM Drive	\$375
Panasonic 4x CD-ROM Drive	\$205
Toshiba 4X CD-ROM Drive IDE	\$220
Toshiba 4X CD-ROM Drive SCSI	\$469
Sound Blaster 16 (OEM)	\$105
Pro-Audio Studio 16 SCSI	\$175
Logitech SoundMan 16 WAVE	\$185
Sound Blaster 32AWE Value	\$230
Sound Blaster AWE-32	\$369
120W Speaker W/built-in Adapter, vol. control	\$99
70W Speaker W/AC-DC Adapter, vol. control	\$79
4W Speaker	\$9
40W speaker W/built-in Adaptor/vol.control	\$39
Microsoft Encarta95 4CDs	\$95



Misc. & Accessories

Cables	
Ribbons	
Toners	
Removable IDE Hard Drive Kit	\$39
External SCSI HD Box w/PS 3.5	\$99
External SCSI HD Box 5.25 Bay	\$115



Local Bus Video Cards

VL-VESA 1MB DRAM (Exp. 2MB)	\$99
S3 Trio64 PCI 2MB VGA Card	\$189
ATI Ultra Pro 2MB VRAM VL	\$299
Diamond Viper 2MB VRAM VL	\$289
ATI MACH64 2MB DRAM PCI/VL	\$249
ATI Pro Turbo 2MB VRAM VL	\$359
ATI WIN Turbo 2MB PCI	\$379
MiroCRYSTAL-20SV 2MB VRAM	\$349
Diamond Stealth64 2MB DRAM	\$239
Diamond Stealth64 2MB VRAM	\$369



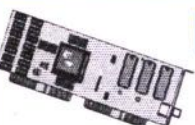
I/O Controller Cards

VL-VESA Enhanced IDE 2s/1p/1g	\$35
Adaptec VL-SCSI 2842 Kit	\$299
Adaptec PCI-SCSI 2940	\$315
Adaptec PCI-SCSI 2940 Kit	\$355
Adaptec 2940 Wide SCSI	\$435



Tape Backup

Colorado DJ-35 Jumbo 350MB	\$205
IONEGA Zip Drive External	\$289



Network Cards

Microdync NE2000 ISA 10BastT	\$85
Intel EtherExpress Flash T	\$99
Gateway Ethernet 16 Coax	\$99
3Com 509 Combo EtherLink III	\$178
SMC EtherEasr 16BII	\$135



Fax Modems

Smart link 14.4 with Voice	Int.	\$85
Smart link 28.8 with Voice	Int.	\$175
USR Sportster 14.4	Int.	\$135
USR Sportster 14.4	Ext.	\$165
Sportster 28.8 V.34	Int.	\$259
Sportster 28.8 V.34	Ext.	\$289



Cases & Power Supplies

13" Mini Tower 200 Watts	\$65
15" Mini Tower 200 Watts	\$75
19" Mid Tower 200 Watts	\$85
24" Full Tower 230 Watts	\$120
19" Colour Case 200 Watts	\$125

Lifetime warranty on power supply

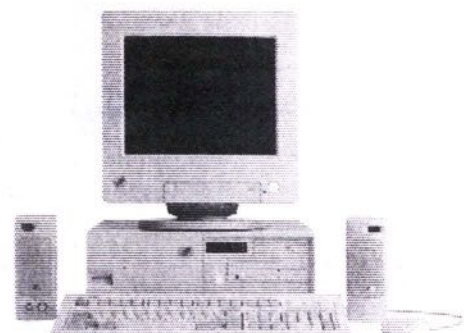


Printers

Brother HL-641 512K 6PPM	\$569
Brother HL-660 2MB 6PPM	\$799
Fujitsu 8000 1MB 8PPM	\$799
Raven 2405 HUSH 24Pin	\$239
Canon BJC-4000 Bubble Jet	\$469
Canon BJ-100 Bubble Jet	\$289
Brother HL-1260 12PPM	\$1599



Authorized dealer



Call for current prices



Monitors

14" N/I .28 Low Radiation	\$299
CompuPartner 15" N/I .28 LR	\$445
CompuPartner 17" N/I .28 LR	\$825
NEC 15XV 15" N/I .28 1024	\$649
NEC 15XE 15" N/I .28 1024	\$799
NEC 17XE 17" N/I .28 1024	\$1449
SONY 15" s/I .25 1280	\$689
Samsung 17" CLS .26 1280	\$1289
ADI 4GP N/I LR 1280x1024	\$535
ADI 5EP N/I LR 1280x1024	\$925
MAG DX17F N/I .26 1280x1024	\$979



Hard Drives

Samsung 560MB 128K 12ms IDE	\$240
Western Digital 850MB 10ms	\$279
Western Digital 1.2GB 10ms	\$399
WD 1.6 GB 10ms	\$545
Quantum 1.05GB 12ms SCSI	\$625
Quantum 2GB 9.5ms SCSI	\$1149
Quantum 4.28GB 8.6ms SCSI	\$1625

Prices are subject to change without notice. C.O.D. cash only.

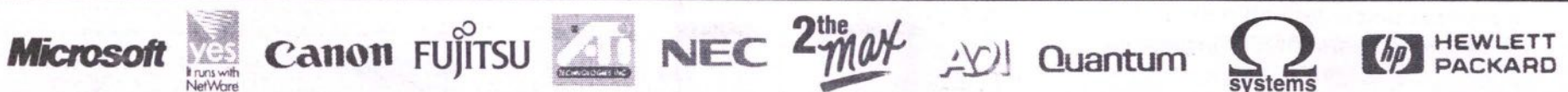
IBM is registered trade-marks of International Business Machines Corporation.

IBC Computers

3243 Main Street (at 16th)
Vancouver, B.C.
V5V 3M6

Phone: (604) 876-8855
Fax: (604) 876-8779
Tech: (604) 876-8157

Store Hours:
Mon-Fr.: 9:30-6:30
Sat.: 11:00-6:00



instead of those from its acquisition of WordPerfect and the \$145 million asset purchased from Borland International Inc.

Other software companies are negotiating to buy the WordPerfect software, QuattroPro spreadsheet and other business applications.

AP says the businesses to be sold represented \$86.1 million of Novell's \$538 million in third-quarter revenue.

WordPerfect's Bastian Quits Novell

Novell Inc. reports that WordPerfect Corp. co-founder Bruce Bastian has resigned from its board of directors.

Bastian joined the Novell board as a result of the company's 1994 acquisition of WordPerfect Corp., which he founded with Alan Ashton in 1979. Bastian's departure comes a couple of weeks after Novell announced that it

plans to sell most of the assets and products from the WordPerfect buyout.

Novell says Bastian is leaving to pursue other interests.

Microsoft Fixes Windows 95 Flaws

Two potential security problems with the Windows 95 operating software have been identified and fixed, publisher Microsoft Corp.

says. The company told visitors to its World Wide Web page on the Internet that it discovered and fixed a problem with the file and printer sharing in the software.

IBM Exec May Head Digital PC Unit

Bruce Claflin has resigned as general manager of product and brand management at IBM Corp.'s PC unit, and may be headed to rival Digital Equipment Corp. to lead the company's PC business. IBM says Claflin resigned to pursue other interests. An internal memo issued by the computer maker says a replacement will be named shortly.

Chinese Court Finds Piracy

For the first time, a Beijing court has found a Chinese company guilty of copyright infringement, prompting a Microsoft Corp. official to say she is hoping for punitive damages when the court rules on that part of the case early next month.

Reporting from Beijing, writer Jane Macartney of the Reuter News Service says the Oct. 12 court decision, which was revealed just today in the Chinese media, found a major Chinese computer dealer guilty of copying software illegally.

Valerie Colbourn of Microsoft, who also is vice-president of the Business Software Alliance, told the wire service, "We hope this is a very strong precedent. We are very pleased that the court made this decision. Although we are not so pleased with how long it took."

Reuters says the Beijing Intermediate People's Court found the Ju Ren Computer Co. unlawfully duplicated and distributed Autocad, Lotus 1-2-3, Windows 3.0, Microsoft Word, WordPerfect 5.2 and other software programs. The case was filed in February 1994 by Microsoft, Autodesk Inc., and WordPerfect Application Group.

Worldwide Typeface Planned

Font publisher Bitstream Inc. has unveiled a universal typeface that it hopes will make communication easier between Internet users around the world.

The Bitstream Cyberbit Worldwide Typeface is designed to ensure the accurate, legible viewing of multilingual documents. The product incorporates the majority of the world's major language character sets. Bitstream says it will begin distributing the typeface over the World Wide Web in early 1996 at no cost.

"While we call it the World Wide Web, the predominant language used on the Net has really been English," says Jim Welch, director of emerging technologies at Bitstream, "But there is a growing number of Internet users using their own languages; and people in other countries can not effectively view these documents because they lack the typeface support on their systems. Cyberbit will change all that."

Bitstream says the initial release of Cyberbit will support all the character set needs of North and South America, Western and Eastern Europe, Scandinavia, Greece, Turkey, Russia, the Middle East, India, Thailand and

(Continued on page 12)



BYTE & SOUND

Computer - Multimedia - Karaoke - Cellular

Canon MONEY-SAVING PROMOS

Laser Printer

Canon LBP-430W Laser Printer

4 pages per minute
Microsoft-at-work Printing System
True WYSIWYG at Faster Speed
Industry First 3 year Warranty

\$569

Received
2 Free toner
Save \$176
for 430W only



Canon LBP-460 Laser Printer

4 pages per minute
600DPI Canon's Automatic Image Refinement Technology
Microsoft Windows Printing Systems
Industry First 2 year Warranty

\$559



NEC

2000D Color Notebook

486DX4-75
4MB Ram
340MB Hard Drive

\$2700

Versa 486/33 Color Notebook

\$1700

Bubble Jet Printers

Canon

BJ-30 Portable Bubble Jet



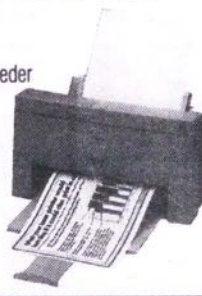
720 x 360 dpi 3.5 ppm
30 sheet automatic feeder

\$315

Canon

BJC-4000 Color Bubble Jet

5 pages per minute
20 True Type Fonts
100 sheet automatic feeder



\$429

Canon

BJC-70 Portable Color Bubble Jet

720 x 360 dpi
4 ppm in monochrome
360 dpi in brilliant color
30 sheet automatic feeder



\$479

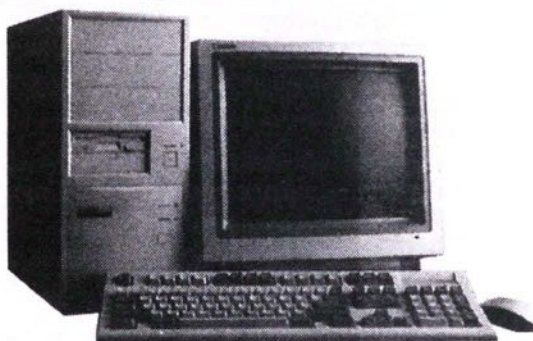
Canon Innova Media System

Pentium 60mhz Processor

- * Mini-Tower Case
- * 8MB Ram
- * 1.44MB Floppy Drive
- * 540MB IDE Hard Drive
- * 1MB Video Card
- * Sony dual speed internal IDE CD-ROM Drive
- * 16 Bit Sound Card
- * 14.4bps Internal Fax & Modem
- * Canon serial mouse and mouse pad
- * Deluxe Speakers
- * Canon 101 Enhanced Keyboard
- * MS DOS 6.22 & Windows 3.11
- * Selection of CD-ROM titles
- * Pre-loaded software
- * 14" L.R. NI. Color Monitor
- * 3 Years Warranty (2 year depot, 1 year on-site)

\$2,199⁰⁰

Canon



FREE
Windows 95
ask for details

486DX2-66MHz Processor

- * Mini-Tower Case
- * 8MB Ram
- * 1.44MB Floppy Drive
- * 420MB IDE Hard Drive
- * 1MB Video Card
- * Sony dual speed internal IDE CD-ROM Drive
- * 16Bit Sound Card
- * 14.4bps Internal Fax & Modem
- * Canon serial mouse and mouse pad
- * Deluxe Speakers
- * Canon 101 Enhanced Keyboard
- * MS DOS 6.22 & Windows 3.11
- * Selection of CD-ROM titles
- * Pre-loaded software
- * 14" L.R. NI. Color Monitor
- * 3 Years Warranty (2 year depot, 1 year on-site)

\$1,799⁰⁰

Prices are subject to change without notice. VISA service charge is 2.8%.

SURREY

Tel: (604) 589-0388

Suite #103, 14888-104th Ave. Surrey, B.C. V3R 1M4

COQUITLAM

Tel: (604) 941-1833

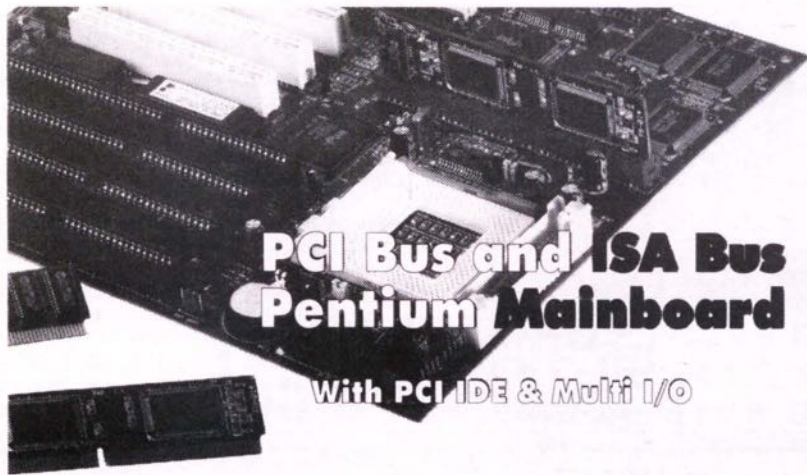
#124 Westwood Mall, Coquitlam, B.C. V3B 1C5

YOUR ONE-STOP SOURCE!

Broad Selection

Competitive Prices

Brand Names



**PCI Bus and ISA Bus
Pentium Mainboard**

With PCI IDE & Multi I/O

**Amptron® PM-7600
Motherboard**

SPECIFICATION

CPU

Intel Triton PCiset support
Pentium 75/90/100/120/133/150/167/180/200 MHz processors
Supports Voltage Regulator Module (VRAM)

Architecture

3 PCI Local Bus slots and 4x16 bits ISA Bus slots,
All three PCI slots support Master mode.
Achieve high performance transfer rate 16.67MB/S for bus master,
PCI Bus bandwidth up to 100MB/S

Cache Memory Slot

Level 2 cache 256/512 KB Asynchronous or
256KB Pipeline burst SRAM module

System Memory

Use 72-pin SIMM modules x 4 auto banking
in multiple configuration up to 128MB,
Supports EDO mode DRAMs.

I/O SPEC

2 PCI IDE interface on board support ATA spec. up to mode 4
IDE interface- Bus master support,
Support two 16550 compatible enhanced serial port,
Floppy disk interface and
EPP/ECP high performance parallel port function

System BIOS

Support Flash ROM, Plug and Play, Green Feature,
NCR 810 SCSI BIOS



**SCEPTRE®
486-33 DSTN Sub Notebook**
4MB RAM 340MB Hard Drive



SCEPTRE

High Resolution Monitors
Featuring 14", 15", 17", and 21"

- 3 Yr Warranty
- Low Radiation
- Flat screen
- Ultra-Sharp



SCEPTRE

Multimedia Notebooks
486 66/100 or Pentium 75/90

- SoundBlaster
- Modular
- NiMH Batt.
- Mono, Active,
& DualScan



SCEPTRE

LCD Pannel
DualScan & Active Matrix LCDs

- Space Saving (1.5" deep)
- Portable & Tiny footprint
- No radiation
- PCI or Vesa interface
- Low power consumption



Acer

AcerOpen Systems
Pentium & 486 Systems

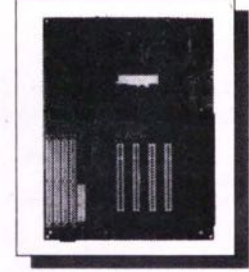
- Modular Design
- Consistent, Reliable Parts
- Energy Star Compliant
- Home & Multimedia PCs
- Workstations & Servers



Acer

Motherboards
Pentium & 486 Motherboards

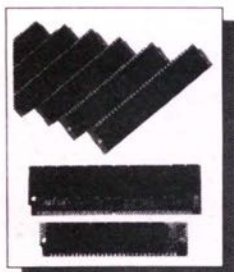
- Acer
- Leo (FIC)
- Gigabyte
- 72-pin & 30-pin SIMMs
- Energy Star Compliant



ASUS

Pentium Motherboards
System Components

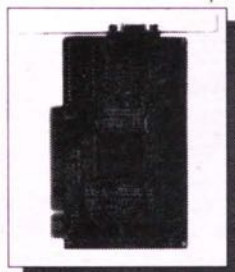
- IP54NP4 Dual Pentium
- EP54NP4 EISA Dual Pentium
- P55TP4XE, Pentium 75-133
- EDO & Pipeline Burst SRAM
- Plug 'n Play, Flash BIOS



TOSHIBA

Memory Modules
Premium Japanese & US RAM

- Toshiba
- Hitachi
- Digital
- NEC, OKI
- TexasInstruments



DIAMOND

Peripherals

- S3, Trident, Cirrus Logic,
- ATI, Diamond Video Cards
- 14.4 & 28.8 FaxModems
- Floppy Drives & Mice
- IDE & SCSI Adaptors



KME

KME Cases & Power Supplies

- Minitor: 13"
- Tower: 15", 19", 21"
- Sever Tower: 26" & Dual
- CSA Power Supplies
- 200W, 230W, 250W, 300W



CREATIVE

Multimedia

- Creative Labs
- Turtle Beach
- Sony, Panasonic, Toshiba
- CD Titles & Bundles
- EVER Multimedia cases



WESTERN DIGITAL

Hard Drives

- Western Digital, Seagate
- Maxtor, Conner, Quantum
- IDE from 560MB to 1.6GB
- SCSI from 540MB to 9.0GB
- System & Notebook Drives



Proxcel

Keyboards & Mice

- Proxcel
- Focus
- Keytronic
- Chicony
- NMB

Distributors:

LAPRO Marketing
Unit 510, 3771 Jacombs Rd Richmond, BC
Tel (604) 244-7798 Fax (604) 244-7796

Dealers:

NT **Nicer Computer & Services**
Tel (604) 377-4982
Fax (604) 435-3222



Quantum Technologies
Unit 125, 3751 Jacombs Rd Richmond, BC
Tel (604) 244-5952 Fax (604) 244-5953

Triton Station

Intel Pentium Processor with Fan (support up to 150MHz)
GigaByte Triton chipset PCI/ISA Main Board w/256KB External Cache
Plug & Play support, ZIF CPU Socket 7 + VRM for Future Intel CPU
8MB-70ns Fast Page DRAM exp. to 128MB
1.44MB Floppy Drive
850MB Fast IDE Hard Drive (Mode 3)
PCI Enhanced IDE Cont. w/ 2x16550 Serial, 1xBi-Directional Parallel
Bus Mastering (DMA) Mode (22MB/s)
PCI ATI Xpression 64-bit Windows Accelerator with 2MB DRAM
Sceptre 15" Non-Int. Low Rad. SVGA Monitor
Mid-Tower Case with CSA Power Supply
101-keys Enhanced Keyboard
2 Year Parts & Service Warranty

**EDO
MEMORY
UPGRADABLE**

75 MHz	\$1,900
90 MHz	\$2,035
100MHz	\$2,055
120MHz	\$2,185
133MHz	\$2,410



Triton Station Plus

Intel Pentium Processor with Fan (support up to 150MHz)
Triton chipset PCI/ISA Main Board w/256KB Pipeline Burst Cache
8MB-70ns EDO Performance-Enhanced DRAM exp. to 128MB
1.44MB Floppy Drive
850MB Fast IDE Hard Drive (Mode 3)
PCI Enhanced IDE Cont. w/ 2x16550 Serial, 1xBi-Directional Parallel
Support up to 4 IDE Hard Drive, Max. Transfer Rate up to 16MB/Sec
Integrated 8 x 32-bit buffer for PCI IDE Burst Transfers
PCI ATI Xpression 64-bit Windows Accelerator with 2MB DRAM
Sceptre 15" Non-Int. Low Rad. SVGA Monitor
Mid-Tower Case with CSA Power Supply
101-keys Enhanced Keyboard
2 Year Parts & Service Warranty

**EDO
MEMORY
INSTALLED**

75 MHz	\$1,985
90 MHz	\$2,120
100MHz	\$2,140
120MHz	\$2,270
133MHz	\$2,495



CreativeLabs \$379

4X CD Value Kit Includes 11 Software Titles
MS CD Bundle for \$88 With Purchase of 4X CD Kit:
Encarta 95, Works 3.0, Money 3.0, Scenes,
Golf, Dangerous Creatures, Entertainment 4

IDE Hard Drive Special !!

ENHANCED 540MB	\$228
IDE 850MB	\$266
IDE 1.08GB	\$318

**1.2GB
\$359**

**HARD
DRIVE**

Monthly Special !!

SIMM Memory

8MB 70ns 72-Pin SIMM Memory

Only !! \$339.00

PANASONIC

PANASONIC 2X Speed Internal
CD ROM Drive

Limited Quantity !! **\$78.00**

GVC Modem

14,400bps Internal Fax Modem
V.32 bis with Error Control

Limited Quantity !! **\$59.00**

Power Station

Features:

Intel Pentium CPU with Fan
Pentium PCI/ISA Main Board
w/256KB External Cache
8MB-70ns Fast Page DRAM exp. to 192MB
1.44MB Floppy Drive
540MB Fast IDE Hard Drive (Mode 3)
PCI Enhanced IDE Controller (Mode 3 & 4)
PCI Trident 9440 Windows Accelerator
with 1MB DRAM (expandable to 2MB)
2x16550 UART Serial, 1 Bi-Directional Parallel
14" Non-Int Low Rad. SVGA Monitor .28mm dp
Mid-Tower Case with 230W CSA Power Supply
101-keys Enhanced Keyboard
2 Year Parts & Service Warranty



PENTIUM

75MHz	\$1,475
100MHz	\$1,630
120MHz	\$1,760

Multimedia System

Features:

486 VESA/ISA Main Board
P24T upgradable w/256KB External Cache
8MB-70ns Fast Page DRAM exp. to 128MB
1.44MB Floppy Drive
540MB Fast IDE Hard Drive (Enhanced Mode 3)
VESA Local Bus FDD/Enhanced IDE Controller
VESA Cirrus Logic 5429 Windows Accelerator
with 1MB DRAM (expandable to 2MB)
2 Serial, 1 Parallel & 1 Game Port
14" Non-Int Low Rad SVGA Monitor .28mm dp
Mid-Tower Case with 230W CSA Power Supply
101-keys Enhanced Keyboard, Speakers
Sound Blaster 16 Card, 5x Speed CD-ROM
2 Year Parts & Service Warranty



486	INTEL	AMD
DX2-66		\$1,570
DX4-100	\$1,665	\$1,645
DX4-120		\$1,678

Multimedia System

Features:

486 VESA/ISA Main Board
P24T upgradable w/256KB External Cache
4MB-70ns Fast Page DRAM exp. to 128MB
1.44MB Floppy Drive
540MB Fast IDE Hard Drive (Enhanced Mode 3)
VESA Local Bus FDD/Enhanced IDE Controller
VESA Cirrus Logic 5429 Windows Accelerator
with 1MB DRAM (expandable to 2MB)
2 Serial, 1 Parallel & 1 Game Port
14" Non-Int Low Rad SVGA Monitor .28mm dp
Mid-Tower Case with 230W CSA Power Supply
101-keys Enhanced Keyboard, Speakers
Sound Blaster 16 Card, 2x Speed CD-ROM
2 Year Parts & Service Warranty



486	INTEL	AMD
DX2-66		\$1,275
DX4-100	\$1,370	\$1,350
DX4-120		\$1,383

Impression

Features:

486 VESA/ISA Main Board
P24T upgradable w/256KB External Cache
4MB-70ns Fast Page DRAM exp. to 128MB
1.44MB Floppy Drive
540MB Fast IDE Hard Drive (Enhanced Mode 3)
VESA Local Bus FDD/Enhanced IDE Controller
VESA Cirrus Logic 5429 Windows Accelerator
with 1MB DRAM (expandable to 2MB)
2 Serial, 1 Parallel & 1 Game Port
14" Non-Int Low Rad. SVGA Monitor .28mm dp
Mini-Tower Case with CSA Power Supply
101-keys Enhanced Keyboard
2 Year Parts & Service Warranty



**PCI Bus
w/ FAST I/O &
64 BIT VIDEO
\$ 55 more**

486	INTEL	AMD
DX2-66		\$1,065
DX4-100	\$1,160	\$1,140
DX4-120		\$1,173

Video Graphics Adaptors

ATI Mach 64 Xpression VLB/PCI w/2MB DRAM	\$230.00
ATI Mach 64 WinTurbo VLB/PCI w/2MB VRAM	\$355.00
ATI Mach 64 Win Turbo VLB/PCI w/4MB VRAM	\$598.00
ATI Mach 64 Graphic Pro Turbo VLB/PCI w/2MB VRAM	\$449.00
Diamond Stealth 64 Video PCI w/1MB DRAM	\$180.00
Diamond Stealth 64 Video PCI w/2MB DRAM	\$235.00
Diamond Stealth 64 Video 3200 PCI w/2MB VRAM	\$355.00
Diamond Stealth 64 Video VLB/PCI w/2MB VRAM	\$465.00
Diamond Stealth 64 Video VLB/PCI w/4MB VRAM	\$675.00
Cirrus Logic 5429 VLB w/1MB exp. to 2MB	\$90.00
Cirrus Logic 5434 PCI w/1MB exp. to 2MB	\$125.00
S3-864 64-Bit PCI w/1MB exp. to 2MB	\$135.00
Trident 9440 PCI w/1MB exp. to 2MB	\$90.00

Monitors

Sceptre 14" N/L/R (1024x768, 28mmDP)	\$300.00
Sceptre 15" N/L/R (1280x1024, 28mmDP)	\$465.00
CompuPartner 14" N/L/R (1024x768, 28mmDP)	\$335.00
CompuPartner 17" N/L/R (1280x1024, 28mmDP)	\$825.00
ADI 4GP 15" N/L/R (1280x1024, 28mmDP)	\$540.00
ADI 5EP 17" N/L/R (1280x1024, 28mmDP)	\$890.00
Mag DX15F 15" N/L/R (1280x1024, 28mmDP)	\$499.00
Mag DX17F 17" N/L/R (1280x1024, 28mmDP)	\$935.00
Sony 15SF 15" N/L/R (1280x1024, 25mmDP)	\$680.00
Sony 17SF 17" N/L/R (1280x1024, 25mmDP)	\$1295.00
Sony 17SE 17" N/L/R (1600x1280, 25mmDP)	\$1540.00

HD/FD Controllers

ISA IDE HD/FD Controller with I/O	\$19.00
VLB Enhanced IDE with I/O	\$28.00

VLB Enhanced IDE with I/O UART 16550	\$38.00
Adaptec 1505 SCSI CD-ROM Controller	\$75.00
Adaptec 1542CF SCSI HD/FD Controller	\$285.00
Adaptec 1542CF SCSI Controller w/Kit	\$365.00
Adaptec 2940 PCI SCSI Controller	\$359.00
Adaptec 2940W PCI SCSI Controller	\$490.00
Adaptec 3940 PCI Multi-Channel SCSI Controller	\$595.00

Keyboards & Cases

Fujitsu 4720 Enhanced 101 Keys	\$59.00
Fujitsu 8720 Enhanced 101 Keys	\$30.00
Mitsumi Windows 95 Keyboard	\$30.00
Enhanced 101-Keys	\$23.00
Microsoft Natural Keyboard	\$99.00
Full Size Tower with 230W CSA Power Supply	\$120.00
Mid Size Tower with 230W CSA Power Supply	\$80.00
Mini Size Tower with 200W CSA Power Supply	\$60.00
Desktop with 200W CSA Power Supply	\$65.00

Drives & Tape Backup

1.2MB 5.25" Floppy Drive	\$61.00
1.44MB 3.5" Floppy Drive	\$40.00
Enhanced 540MB IDE Hard Drive	\$228.00
Enhanced 850MB IDE Hard Drive	\$266.00
Enhanced 1.2GB IDE Hard Drive	\$359.00
Enhanced 1.6GB IDE Hard Drive	\$519.00
Seagate 1.08GB EIDE Hard Drive 8ms	\$335.00
Seagate 1.0GB SCSI-2 Hard Drive	\$490.00
Seagate 2.1GB SCSI-2 Hard Drive	\$1000.00
Seagate 4.26GB SCSI-2 Hard Drive	\$1425.00
Seagate 9.0GB SCSI-2 Hard Drive	\$3450.00
Colorado DJ-35 Jumbo 350MB Backup Drive	\$180.00

Colorado DJ-25 Jumbo 700MB Backup Drive	\$293.00
Colorado DJ-50 Jumbo 1.36GB Backup Drive	\$345.00
Conner 420MB Tape Backup Drive	\$190.00
Conner 800MB Travan Tape Backup Drive	\$249.00

Motherboards

Triton Pentium 75/100MHz PCI/ISA w/256KB Cache	\$500/655
Triton Pentium 75/100MHz w/256KB Burst Cache	\$560/715
Advanced/EV 75MHz PCI/ISA w/256KB Burst Cache	\$705.00
Cyrix 5x86-100 PCI w/256KB Cache	\$415.00
GigaByte 486DX2-66/486DX4-100 PCI w/256KB Cache	\$220/295
486DX2-66/DX4-100 VLB w/256KB Cache	\$176/251

MultiMedia

Creative Labs 4X Performance	\$535.00
Creative Labs 4X Multimedia Home	\$565.00
Creative Labs 4X Discovery PnP	\$455.00
Creative Labs Sound Blaster 16 MCD (OEM)	\$105.00
Creative Labs Sound Blaster 16 SCSI (OEM)	\$170.00
Creative Labs Sound Blaster AWE32	\$355.00
Creative Labs Sound Blaster 32	\$225.00
Diamond 8000 8x Multimedia Kit	\$760.00
Panasonic 2X Double Speed CD-ROM Drive	\$78.00
Panasonic 4X Quad Speed IDE CD-ROM Drive	\$185.00
Teac 6X Speed IDE CD ROM Drive	\$375.00
Toshiba 3601 4.4X Quad Speed SCSI CD-ROM Drive	\$455.00
NEC 6X Six Speed SCSI CD ROM Drive	\$620.00
Plextor 6X Six Speed SCSI CD-ROM Drive	\$710.00

Memory

16MB-70ns SIMM (72-pin)	C a i l
8MB-70ns SIMM (72-pin)	C a i l

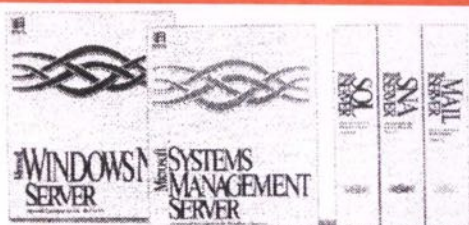
4MB-70ns SIMM (72-pin)	C a i l
1MB-70ns SIMM (30-pin)	C a i l

Modems & Mice

14.4 S/R Int. Fax Modem	\$59.00
14.4 S/R Int. Fax Modem w/Voice	\$88.00
28.8 S/R Int. Fax Modem	\$188.00
28.8 S/R Int. Fax Modem w/Voice	\$208.00
US Robotics Sportster 14.4 Int. Fax Modem	\$125.00
US Robotics Sportster 14.4 Ext. Fax Modem	\$149.00
US Robotics Sportster 28.8 Int. Fax Modem V.34	\$259.00
US Robotics Sportster 28.8 Ext. Fax Modem V.34	\$287.00
US Robotics 28.8Vi Int. Fax Modem w/Voice	\$289.00
Microsoft Mouse v.2 OEM	\$35.00
Logitech Mouseman OEM	\$33.00
Microsoft Comp. Mouse	\$15.00

Printers

Canon BJ-210 Color Inkjet	\$399.00
Canon BJC-4000 Color Inkjet	\$409.00
Canon BJC-70 Color Printer	\$485.00
Brother HL660 Laser Printer 600dpi	\$699.00
Brother HL1260 Laser Printer 600dpi	\$1680.00
Epson Stylus II Color Inkjet 720dpi	\$615.00
Epson Stylus IIs Color Inkjet 720dpi	\$459.00
HP 600 Deskjet Printer	\$429.00
HP 660 Deskjet Color Printer	\$579.00
HP 5L Laserjet, 600 dpi 4 PPM	\$689.00
HP 5P Laserjet, 600 dpi 6 PPM	\$1288.00
Raven PR-2405 24-pin, 192 cps	\$235.00
Raven PR-2420 24-pin, 256 cps	\$385.00
Raven PR-2467Q 240 cps	\$595.00



Merry Christmas & Happy New Year

486DX2-66MHz Pentium 75MHz



All In One Piece

- 486DX2-66 Processor & Pentium Overdrive Upgradable
- 540MB EIDE Hard Drive
- 8MB RAM
- 1.44MB Floppy Drive
- Local Bus SVGA Card w/1MB
- Quad Speed CD-ROM
- SB16 Sound Card & Speakers
- 14.4K Internal Fax Modem
- 101 Keyboard & PS/2 Mouse
- 2 Serial & 1 Parallel Port
- 14" NI SVGA Monitor .28mm DP
- DOS 6.22, Windows 3.11, Intuit Quicken SE, Works & much More!

\$1599

486SX2-50MHz Pentium 75MHz



Quad Speed CD ROM

- Pentium 75MHz Processor
- 640MB EIDE Hard Drive
- 8MB RAM
- 1.44MB Floppy Drive
- Local Bus SVGA Card w/1MB
- SB16 Sound Card & Speakers
- 14.4K Internal Fax Modem w/voice
- 4X Speed CD-ROM
- PS/2 Mouse
- 101 Enhanced Keyboard
- 2 Serial & 1 Parallel Port
- DOS 6.22, Windows 3.11, Encarta, Works, Golf & much more!

\$1999

486SX2-50MHz Pentium 75MHz



Multi-Media

- 486SX2-50 Processor
- 420MB IDE Hard Drive
- 4MB RAM
- 1.44MB Floppy Drive
- Local Bus SVGA Card w/1MB
- 16-bit Stereo Sound & Speakers
- Double Speed CD-ROM
- 14.4K Internal Fax Modem & PS/2 Mouse
- 14" SVGA Monitor .28mm DP
- 101 Enhanced Keyboard
- 2 Serial & 1 Parallel Port
- Includes 27 Software titles like DOS-6.22, Windows 3.11, Microsoft Works, Microsoft Money, Grolier Encyclopedia

\$1249

486SX2-50MHz Pentium 75MHz



P100MHz 16MB RAM Twin CD ROM

- Pentium 75MHz Processor
- 850MB EIDE Hard Drive
- 8MB RAM
- 1.44MB Floppy Drive
- PCI Local Bus SVGA Card w/1MB
- 16-bit SRS Stereo Sound & Speaker
- Double Speed CD-ROM
- 14.4K Internal Fax Modem w/voice
- PS/2 Mouse
- 101 Enhanced Keyboard
- 2 ECP Serial & 1 Parallel Port
- Includes 27 Software titles like DOS-6.22, Windows 3.11, Microsoft Works, Microsoft Money, Grolier Encyclopedia

\$2599

* Re-manufactured - 1 Year Warranty Monitor Sold Separately Limited Quantity !!

MICROCONCEPT NETWORK PRODUCTS FOR LESS !!

NOVELL SOFTWARE

Novell 3.12 5 user
\$730.00

NetWare v3.12*

NetWare v3.12 5/10 User	\$730/1470
NetWare v3.12 25/50 User	\$1990/2550
NetWare v3.12 100/250 User	\$3290/5470
NetWare v3.12 Manuals Only	\$335

NetWare v4.1*

NetWare v4.1 5/10 User	\$660/1380
NetWare v4.1 25/50 User	\$1680/1990
NetWare v4.1 100/250 User	\$2320/3950
NetWare v4.1 500/1000 User	\$13500/21500
NetWare v4.1 Manuals Only	\$210

UNIX Connectivity

LAN WorkGroup v4.2 5/10 User	\$1525/2525
LAN WorkPlace for DOS 1/10 User	\$386/1920
NetWare NFS Gateway v1.2 5 User	\$1520
NetWare NFS Gateway v1.2 10 User	\$2535
NetWare NFS Starter Kit	\$1515
NetWare /IP v1.1 5/25 User	\$505/1415

Enterprise Connectivity

NetWare for SAA 16/64 session	\$2005/6035
NetWare HostPrint 16/256 sessions	\$1225/3035
Novell NetWare Connect 8 port	\$2160
Novell NetWare Connect 32 port	\$5500
NetWare for Macintosh v3.12 200 User	\$1000
NetWare for Macintosh v4 Unlimited	\$1215
NetWare Management System v2.0	\$2525
LANalyzer for MS Windows v2.1	\$1515

*upgrade full-version

MICROSOFT NT

Windows NT Server v3.51 CD	\$890
Windows NT Server v3.51 User License	\$50
Windows NT Workstation 3.51 CD	\$405
Windows NT Workstation 3.51 upgrade	\$125
Microsoft SMS version 1.0	\$870
Microsoft SMS ver 1.0 User License	\$68
Microsoft SNA Server v2.1 Windows NT	\$545

TAPE DRIVE

Conner Tapestor 4000
4 GB Tape Drive
\$775.00



Colorado PowerTape 2GB Int/Ext \$1460/1620

Colorado PowerTape 4GB Int/Ext	\$1700/2035
Colorado PT10 1.0GB SCSI-2 Internal	\$920
Colorado PowerDAT 6000 4GB Int/Ext	\$1515/1800
Colorado Trakker 350MB/700MB	\$345/500
Conner Tapestor 4000 4GB QIC	\$775
Conner Turbo 4.0GB DAT Internal Drive Kit	\$1375
Conner Turbo 4.0GB DAT External Drive Kit	\$1650
Exabyte 8505XL 7-14GB int/ext 8mm Tape Drive	\$3000/3130
Exabyte 4200 2-4GB int/ext 4mm DAT Drive	\$1150/1380
Hewlett Packard 2.0GB DAT	\$1065
Hewlett Packard 2GB to 8GB DAT	\$1220
Hewlett Packard 4GB to 16GB DAT	\$1470
Sony SDT-5000A 4-16GB int/ext DAT	\$1390/1605
Tecmar DataVault 8000 8GB External	\$2620
Wangtek 3400DX 8/16GB int. DAT	\$1735

POWER PROTECTION

APC BackUPS 280
\$149.00

American Power 120 Volt

BackUPS 200/280	\$132/149
BackUPS 400/450	\$210/256
BackUPS 600/900/1250	\$355/505/660
SmartUPS 250/400/600	\$330/415/500
SmartUPS 900/1250/2000	\$720/888/1675
Matrix 3000VA/5000VA (Modular UPS)	\$3930/5835
SmartCELL for Matrix	\$703
Line Conditioner LR600/LR1250	\$177/254
PowerChute Plus for Novell	\$94
PowerChute for Windows	\$70
Interface for Lantastic & LAN Manager	\$37
Network Surge Arrest 3 Outlet/7 Outlet	\$29/66
PowerManager 6 Outlet	\$93
PowerNet SNMP agent for Novell	\$157

CABLES & JACKS



Twisted Pair

Assembly, 10 BaseT Cable 8/25/50 ft	\$10/18/25
Assembly, 10 BaseT Cable 100 ft	\$45
Cable, 10BaseT 8c UTP, per ft	\$0.35
Cable, 10BaseT 8c UTP, per 1000 ft	\$220
Connector RJ45M	\$1.00

Coaxial

Assembly, RG58/AU Thin Coax 25/50 ft	\$15/22
Assembly, RG58/AU Thin Coax 100 ft	\$35
Cable, RG58/AU Bulk per ft	\$0.25
Cable, RG58/AU Bulk per 1000 ft	\$180
Connector, BNC "T"	\$2.50

ETHERNET COAX Adapters

3COM 3C503 Etherlink II BNC ea/5+	\$222/200
3COM 3C509B Etherlink III BNC ea/5+	\$155/138
3COM 3C509B Etherlink III BNC 20 pk	\$2535
3COM 3C509B Combo BNC/RJ45 ea/5+	\$173/150
3COM 3C509B Combo BNC/RJ45 20 pk	\$2770
3COM 3C509B Combo BNC/RJ45 60 pk	\$7800
3COM 3C590 PCI Ethernet III Combo	\$230
Accotn EtherCombo ISA	\$112
CNet CN100E BNC Ethernet	\$70
CNet CN200E BNC Ethernet ea/5+	\$79/75
CNet CN200E+ BNC Ethernet Jumpless	\$79
CNet CN10E/PCI Ethernet Combo	\$227
Eagle EP 2000plus 16 Bit BNC ea/5+	\$105/99
Intel EtherExpress Flash BNC ea/5+	\$169/155
Intel Ether PRO BNC & RJ45 ea/20+	\$146/135
Microdyne NE2000 + BNC	\$141
SMC Ethercard 16 BNC ea/6+	\$135/125
SMC Ethercard Elite/a Microchannel BNC	\$265
SMC Ultra 16 Combo ea/6+	\$150/138

Print Servers

Castelle Lan Press 1 RJ45/1 Par	\$455
Castelle Lan Press 1 Par + 3 Ser	\$745
Castelle Lan Press 2 Par + 2 Ser	\$925
Emulex NetQue 2 Port Print Server	\$745
HP JetDirect J2552A RJ45/BNC/LocalTalk	\$520
HP JetDirect J2555A Token Ring DB-9 & RJ45	\$745
Intel Netport II 10Base-T	\$540
Intel Netport II Thin/Thick	\$540
Milan FastPort 3110/3210	\$570/670

PCMCIA Adapters

D-Link DE-650C PCMCIA Combo	\$423
Eagle NE200C PCMCIA BNC	\$343
Eagle NE200T PCMCIA RJ45	\$294
IBM PCMCIA TokenRing 16/4	\$565
Microdyne NE4200 PCMCIA 10 Base T	\$310
Silicom PCMCIA Ethernet BNC	\$240
Silicom PCMCIA Ethernet w 1MB RAM	\$409
Silicom PCMCIA Ethernet RJ45	\$225
Silicom PCMCIA Ethernet BNC & RJ45	\$254
Xircor PCMCIA Ethernet RJ45	\$218
Xircor PCMCIA Ethernet BNC & RJ45	\$284

10 BASE T HUBS

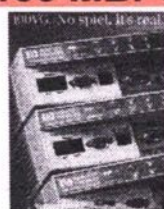
3COM 3C16170 Linkbuilder 12 Port Hub	\$450
3COM 3C16671 Linkbuilder FMS II 12 Port	\$799
3COM 3C16671 Linkbuilder FMS II 24 Port mgmt	\$1390
CNet CN88TPC 8 Port Hub	\$180
CNet CN80TPC 12 Port Hub	\$410
CNet CN8816TPC 16 Port Hub, Small Footprint	\$460
CNet CN8900TPC 12 Port Hub	\$640
CNet CN8910TPC 12 Port Hub w/SNMP	\$1065

10 BASE T Adapters

3COM 3C503-16 TP ea/5+	\$235/205
3COM 3C509B TP ea/5+	\$140/128
3COM 3C590 TP PCI	\$193
CNet CN600E 10 Base T ea/5+	\$70/67
CNet CN600E+ 10 Base T Jumpless	\$75
CNet CN970E/10 Base T PCI	\$180
Eagle Anthem NE2000T + ea/5+	\$101/95
Eagle Anthem NE200T PCMCIA	\$294
HP EtherTwist 16 10 BaseT ea/6+	\$118
IBM Ethernet 10 BaseT Adapter ea/6+	\$117
IBM PCMCIA Ethernet 10 BaseT	\$283
Intel EtherExpress Pro 10 BaseT	\$147
Microdyne NE 2000T+ 10 BaseT	\$101
Microdyne NE 2000T+ 10 BaseT 20 pk	\$1835
Microdyne NE3300 EISA Combo	\$288
Microdyne NE5500 PCI 10 Base T	\$259
SMC Ethercard Elite 16T Ultra ea/6+	\$133/112
SMC Elite 10 T/A Microchannel	\$265
Xircor Pocket EtherTalk 10 BaseT	\$390

100 MBPS SYSTEMS

3COM 3C595-TX FastEthernet ea/5+	\$350/315
Intel Pro 100 EISA FastEthernet	\$365
Intel Pro 100 PCI FastEthernet	\$317
Intel Pro 100 Smart FastEthernet	\$1030
16 Port 100 MBS Hub	\$5190
HP Networks 100VG ISA Adapter	\$280
HP Networks 100VG EISA Adapter	\$345
HP Networks 100VG 15 Port Hub	\$3100
Thomas Coax 100 Mbps Adapter	\$660
Thomas Coax STP 100 Mbps Adapter	\$660
Thomas Coax TC3050-CX 8 Port Coax Hub	\$1775
Thomas Coax TC3050-30ST 8 Port STP Hub	\$2180



HP100VG ISA Adapter
\$280.00

Systems Inc.

Tel: (604) 730-8183
Fax: (604) 730-7983

Store Hours:

Mon-Fri	09:30am - 6:30pm
Sat	10:00am - 5:00pm
Sun	Closed

- * Two Year Parts And Service Warranty (Systems Only)
- * All Systems Are Tested And Burned-In For 48 Hours Before Shipping
- * Government And Corporate Purchase Orders Welcome
- * Fax Orders And Bids Are Accepted
- * All Prices Reflect 2% Cash Discount
- * Leasing Available
- * Prices Subject To Change Without Prior Notice

All product names, trademarks and registered trademarks are properties of their respective owner



SYSTEM - PRO COMPUTERS Ltd.
TEL : 583-9977 FAX : 583-9979

Pentium 75/90/100/120
GIGA-BYTE PCI-ISA Board
8M Ram w/ 256K Cache
3.5" Floppy Drive
2-The Max PCI Video Card
Daytek 14" SVGA Monitor
14.4K Internal Fax Modem
15" Tower Case
630M IDE Hard Drive
Window 95 Keyboard & Mouse
Internet Software Preinstalled
\$1971/2121/2169/2289

Multimedia Kit

- Mitsumi 4XCD-ROM
- Sound Blaster 16Bit Sound Card
- 5 Microsoft CD Title **\$429**
(Encarta 95, Works, Money, Golf, Dangerous Creature)

AST
AUTHORIZED
RESELLER

HP
HEWLETT
PACKARD
AUTHORIZED RETAILER

TVM RAVEN NEC
AUTHORIZED RESELLER

HardDrives

Conner IDE 850 \$325
Conner IDE 1.2GM \$399
Samsung IDE 1.08G \$380
W.D. IDE 630M \$290
W.D. IDE 1.28G \$430

Printers

Canon BJC-4000 Inkjet \$510
Epson Stylus IIS Inkjet \$490
Epson Stylus II Inkjet \$659
Epson Action 1100 \$650
HP 600 Inkjet (Mono) \$479
HP 660C Inkjet \$590
HP 5L Laser Printer \$729
HP 5P Laser Printer \$1299
Raven LS3 Laser Printer \$639
Raven LS6 Laser Printer \$755

Monitors

Proview 14", Green \$335
Proview 15", Green \$490
Proview 17", Green \$835
Daytek 14", Green \$349
Daytek 15", Green \$480
Daytek 17", Green \$885
Nec 15", 0.28, VX15 \$699

Motherboard w/CPU

Intel 486 DX2-66 PCI \$402
Intel 486 DX4-100 PCI \$460
AMD 486 DX2-66 PCI \$327
AMD 486 DX4-100 PCI \$382
Pentium-75 PCI-ISA \$595
Pentium-90 PCI-ISA \$720
Pentium-100 PCI-ISA \$785
Pentium-120 PCI-ISA \$1199

Computer Courses

MS-DOS 6.22(Basic) \$90
WINDOWS95 (Basic) \$90
MS-WORDS95(Basic) \$90
HARDWARE ASSEMBLE \$90
INTERNET (Basic) \$90

Prices subject to change without any notice



Business Hours:

Mon-Fri 9:00AM - 6:00PM
Saturday 11:00AM - 5:00PM
Sunday Closed
Long Week-End Closed

Internet Email Address: syspro@digital-rain.com

COMPUTER MAGAZINES:

PC MAGAZINE . PC COMPUTING . PC WORLD . WINDOWS
ELECTRONIC GAMING MONTHLY . COMPUTER GAMES REVIEW

Address : Unit A, 10222, 152nd Street, Surrey, B.C. V3R 6N7
(Across from GUILDFORD MALL, WAL-MART)

(Continued from page 8)

Japan. The initial release will be in TrueType format for Windows 95 and NT. Future releases of the typeface will include support for other platforms, other typeface formats and other languages (such as Chinese and Korean).

Lycos Passes a Milestone

Lycos Inc. reports its World Wide Web search engine (<http://www.lycos.com>) has cataloged more than 10 million sites, representing nearly 92 percent of the entire Web.

The Marlboro, Massachusetts, company says its online catalog currently covers 10.79 million Web sites. Current calculations put the number of Web pages, or Uniform Resource Locators (URLs) at 11.74 million worldwide on 103,059 Web servers. Lycos notes that Web servers are coming online at a rate of 6,000 per month, adding more than 1.1 million URLs every month.

"Our estimates of the size of the Web are conservative," says Michael L. Mauldin, Lycos' chief scientist, and developer of the Lycos spider technology at Carnegie Mellon University. "Nevertheless, with our technology we have been able to rapidly identify and catalog new Web sites at a rate that exceeds the growth rate for the Internet as a whole."

The 10 millionth Web site cataloged by Lycos deals with "Fun Insect Facts." The site, <http://ham.spa.umn.edu/kris/science.html>, is a sub-page of a home page belonging to a fourth year graduate student at the University of Minnesota, Kristine Sigsbee.

Intel to Unveil TV Technology

Chip maker Intel Corp. is set to unveil a technology that lets PC users view television at the same time as computerized information from the Internet's World Wide Web. The Wall Street Journal reports that the product, called InterCast, depends on a special circuit board and software developed by Intel that allows for the broadcast of information over the vertical blanking interval now used for close captioning.

Nintendo Sells Billionth Game

Nintendo has sold its 1 billionth video game worldwide, or the equivalent of one game for every teenager in the world, the video game giant says.

"I don't know that anyone could have envisioned the universal appeal of Nintendo's interactive video games when they were first introduced," Chairman Howard Lincoln of Nintendo of America, told United Press International at his Redmond, Wash., headquarters.

UPI adds, "Since introduction of the first Mario game in Japan in the early 80's, Nintendo has sold video games at the rate of



UNIVELL

Microsystems Inc.

#107 - 3830 Jacombs Road
Richmond, B.C. V6V 1Y6
Tel: (604) 276-9986
Fax: (604) 276-9983

Pentium P5-75

Intel Pentium P5-75 CPU
PCI Motherboard
256K Cache
8MB Ram 72pin Memory
1.44MB Floppy Drive
850MB IDE Hard Drive
PCI Video Card 1MB
14" Sceptre NI/LR SVGA Monitor
101 Keyboard
Windows 95 and Mouse
3-yrs Parts & Labour Warranty

\$1,729.00

Pentium P5-90

Intel Pentium P5-90 CPU
Triton - PCI Motherboard
256K Cache
8MB Ram 72pin Memory
1.44MB Floppy Drive
1.08GB IDE Hard Drive
PCI Video Card 1MB
14" Sceptre NI/LR SVGA Monitor
101 Keyboard
Windows 95 and Mouse
Panasonic 4x CD Rom
Sound Blaster Sound Card
Stereo Speakers Volume Control
Microsoft CD Titles
3-yrs Parts & Labour Warranty

\$2,299.00

Pentium P5-120

Intel Pentium P5-120 CPU
Triton - PCI Motherboard
256K Pipeline Cache
8MB Ram 72pin Memory
1.44MB Floppy Drive
1.08GB IDE Hard Drive
PCI Video Card 1MB
15" Sceptre NI/LR SVGA Monitor
101 Keyboard
Windows 95 and Mouse
Panasonic 4x CD Rom
Sound Blaster Sound Card
Stereo Speakers Volume Control
Microsoft CD Titles
3-yrs Parts & Labour Warranty

\$2,599.00

**14.4
FAX MODEM
\$55**

**2x
CD ROM
\$70**

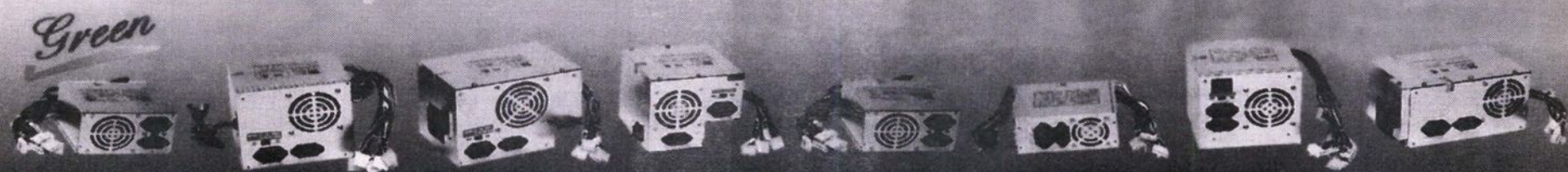
SCEPTRE Colour Notebook

Pentium 75
8MB / 810 HD
\$3,599



• Prices subject to change without notice.

We also offer a wide range of power supplies including **green features:**



nearly 3 per second of every day for the last 12 years... Of the 1 billion games, 50 percent were bought for the original 8-bit Nintendo Entertainment System introduced in Japan in 1983 and the United States in 1985. Some 23 percent were sold for the hand held Game Boy.

Another 27 percent were sold for the 16-bit Super Nintendo Entertainment System."

Or, divided by geography:

- 44 percent of the software cartridges were purchased in Japan.
- 42 percent in the United States and Canada.
- The other 14 percent sold around the world.

UPI says the fastest selling game was last fall's Donkey Kong Country for the Nintendo Entertainment System, which sold more than 2 million units in five weeks in the U.S. alone. But the largest selling single game was the original Super Mario Brothers cartridge for the NES, which has sold more than 40 million copies over 12 years time.

SIA: Chip Market to Grow 26% in '96

The Semiconductor Industry Association is projecting the global chip market will continue to surge next year, growing 26.4 percent to \$185.1 billion.

Reporting from San Jose, California, United Press International quotes SIA as predicting the rate of increase will cool down in 1997 with an 18.1 percent gain to \$218.6 billion and pick up slightly in 1998 with a 19.6 percent rise to \$261.5 billion.

SIA thinks growth will be strong in all geographic regions:

- The North American market will remain the world's largest and rise 29.6 percent next year to \$60.9 billion.
- Japan's market will grow 17.8 percent next year to \$47.7 billion.

• Europe will increase by 26.6 percent to \$36.2 billion.

• The Asia-Pacific region, not including Japan, should post a gain of 32.9 percent to \$40 billion.

UPI notes that the estimate for worldwide increase comes on the heels of a projected 43.7 percent gain this year to \$146.4 billion and 31.8 percent last year to \$101.8 billion.

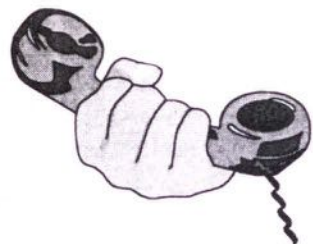
The trade group said sales of memory chips will rise 40.6 percent to \$76 billion in 1996, while microprocessors will grow 22.4 percent in 1996 to \$41.2 billion. Sales of logic chips will increase 16.8 percent to \$23.3 billion next year.

AE ELECTRONICS CORP.

TEL. 279-8867 FAX 279-5510 BBS 279-8510

138-2981 Simpson road
Richmond, BC, V6X 2R2
9AM-6PM Mon-Fri, 10AM-6PM Sat

call us on all your on-site service needs



networking
virus removal
internet connections
software installation
hardware trouble-shooting



Network Software & Kits

Microsoft Windows '95 Upgrade/Full Version	\$125/255
Microsoft Windows NT v3.51 Workstation	395
Microsoft Windows NT v3.51 Server	895
Netware v4.1 (5/10/25/50/100)	1065/2425/3595/4850/6775
Ethernet Hardware Kit (2cards, 2 terminators, 25' coax)	\$175
Lantronic AI v6.0 Starter Kit (complete setup for 2 node)	285
Lantronic AI v6.0 Add-On Kit (complete setup for 1 node)	155
GVC NE2000 16-bit Ethernet Adapter (BNC/10BT)	\$ 65
Intel EtherExpress Pro/10 Ethernet card (10BT)	145
3Com 3C509 Etherlink IIIB Ethernet Card (10BT/10B2)	175
GVC Unmanaged 8-port Hub	255
3Com Linkbuilder TP/8 Unmanaged 8-port Hub	295
3Com Linkbuilder TP/12 Unmanaged 12-port Hub	470
*call for custom length cable both coax (RG58) & twisted pair (RJ-45)	

Motherboard & RAM

Asus SP3 AMD486DX4-100MHz PCI/VLB MB, 256k, IDE/IO	\$345
Asus SP3 486DX4-100MHz PCI/VLB MB, 256k, IDE/IO	375
Asus SP4 Pentium-75MHz PCI MB, 256k cache, IDE/IO	555
Asus TP4XE Pentium-75MHz PCI MB, 256k cache, IDE/IO	575
Asus TP4XE Pentium-90MHz PCI MB, 256k cache, IDE/IO	715
Asus TP4XE Pentium-100MHz PCI MB, 256k, IDE/IO	780
Asus TP4XE Pentium-120MHz PCI MB, 256k, IDE/IO	895
Asus TP4XE Pentium-133MHz PCI MB, 256k, IDE/IO	1145
*256k Pipelined Burst Cache available on TP4XE motherboards	
AMD 486DX4-100MHz CPU 3V	\$145
486 CPU Heatsink / Pentium Heatsink	12/20
1MB/4MB SIMM-70ns (30pin)	55/195
4MB/8MB/16MB SIMM-70ns (72pin) w/o Parity	180/355/690
4MB/8MB/16MB SIMM (72pin) EDO Memory	205/410/855
*Please call on all Ram prices	

Monitor, Video Card

Daytek 14" SVGA Monitor, 28mm dp, NI, EStar	
Daytek 15" SVGA Monitor, 28mm dp, NI, EStar	
Daytek 17" SVGA Monitor, 28mm dp, NI, EStar	
ADI 4Gp/LR 15" SVGA Monitor, 28mm dp, NI, EStar	
ADI 5Ep/LR 17" SVGA Monitor, 28mm dp, NI, EStar	
Sony 15sf 15" SVGA Monitor, 25mm dp, NI, EStar	
Sony 17sf 17" SVGA Monitor, 25mm dp, NI, EStar	
Sony 17se 17" SVGA Monitor, 25mm dp, NI, EStar	
Cirrus Logic 5429 VLB Accelerator w/1MB	\$115
Cirrus Logic 5434 PCI Accelerator w/1MB	145
ATI Mach32 Accelerator w/1MB (ISA/ VLB/PCI)	145
ATI WinBoost Accelerator w/2MB Dram (VLB/PCI)	255
ATI WinTurbo Accelerator w/2MB/4MB Vram (VLB/PCI)	365/625
Diamond Stealth 64 Video 2000 w/2MB Dram (PCI)	265
Diamond Stealth 64 Video 3200 w/2MB Vram (PCI)	375
Diamond Stealth 64 Video 3400XL w/4MB Vram (PCI)	695

Accpac

Windowing system	\$285
General Ledger	795
Accounts Receivable	1045
Accounts Payable	1045
Lanpak users 5/10/20	1450/2425/3275
Order Entry	375
Inventory Control	615
Job Costing	615

Price may change without notice. All prices FOB Richmond. Insurance extra. Advertised prices are cash, add 2% for credit card orders.

Hard Drive, Controller

Western Digital 635MB EIDE HD, 10ms, 64k cache	\$255
Western Digital 850MB EIDE HD, 10ms, 64k cache	285
Western Digital 1.09GB EIDE HD, 10ms, 64k (mode 4)	335
Western Digital 1.2GB EIDE HD, 10ms, 64k cache	410
Western Digital 1.6GB EIDE HD, 10ms, 64k (mode 4)	525
HP SureStore 1.2GB SCSI-2 HD, 10ms	450
HP SureStore 2.2GB SCSI-2 HD, 10ms	1040
*call for pricing on other drives	
IDE 1:1 HD/FD Adapter w/2S, 1P, 1G	\$25
Enhanced IDE HD/FD VLB Adapter w/2S, 1P, 1G	35
Promise 2300+ VLB Enhanced IDE Card w/Bios	85
Adaptec AH-1542CF ISA SCSI-2 Controller Kit	\$375
Adaptec AH-2842 VLB SCSI-2 Controller Kit	365
Adaptec AH-2940 PCI SCSI-2 Controller Kit	375

Modem, Mice, Scanner

USR Sportster 14.4 v.32bis Fax/Modem (Int/Ext)	\$139/159
USR Sportster 28.8 v.34 Fax/Modem (Int/Ext)	265/290
USR Sportster VI 28.8 v.34 Voice/Fax/Modem (Int/Ext)	290/320
USR Sportster 28.8 v.34 PCMCIA Fax/Modem	399
USR Courier 28.8 v. Everything External Fax/Modem	625
MS Compatible 3-button Serial Mouse	20
Logitech Mouseman (Serial/Bus)	75/95
Logitech Trackball serial mouse	115
Microsoft Mouse v2.0 (Serial/Bus)	85/115
Logitech Scanman 256 w/Omnipage OCR	155
Logitech Scanman Easytouch	245
Logitech Scanman Colour w/Omnipage OCR	295
HP ScanJet 3P Full Page Grey-Scale Scanner	495
HP ScanJet 3C Full Page Colour Scanner	1395
Bar code laser scanner gun, auto trigger	550
Magnetic card reader (serial or keyboard interface)	195
Magnetic card read/writer	1850
***USR Sportster VI modems, phone for availability	

2000

Colorado Travan T1000 Tape Backup Drive (800MB Max.)	\$285
Colorado DJ-50 Tape Backup Drive (1.4GB Max.)	795
Colorado Trakker 350 Parallel Backup (350MB Max.)	1045
HP SureStore 2/4GB Internal 4MM Dat Drive	1045
HP SureStore 4/8GB Internal 4MM Dat Drive	375

Plus

4 user	\$145
	615
	615
	615
	615
	615
	615

Tape, Case, Power

Colorado DJ-35 Tape Backup Drive (350MB Max.)	\$185
Colorado Travan T1000 Tape Backup Drive (800MB Max.)	265
Colorado DJ-50 Tape Backup Drive (1.4GB Max.)	345
Colorado Trakker 350 Parallel Backup (350MB Max.)	325
HP SureStore 2/4GB Internal 4MM Dat Drive	1155
HP SureStore 4/8GB Internal 4MM Dat Drive	1475
3M DC2120 tape cartridge 120MB capacity	\$ 20
3M DC2120XL Tapes, (350MB Max.)	25
3M MC3000XL Tapes, (1.4GB Max.)	45
3M DG90M 4MM DAT Tapes	17
Mini-size 13" tower or Desktop w/200W Jaba PS	\$95
Mid-size 19" tower case w/200W Jaba PS	115
Full-size 25" tower case w/250W Jaba PS	165
Full-size 27" tower case w/300W PS 2 fans, wheels	245

CD-ROM & Others

Panasonic DoubleSpin CD-Rom w/interface	\$ 95
Toshiba QuadSpin CD-Rom 5302b IDE/3601 SCSI-2	225/445
SoundBlaster 16 Vibra Sound Card (OEM)	125
Multimedia Stereo Speakers, 25 Watts	50
Sony CSS-B100 Speaker Set	135
Creative Labs Multimedia Home Office 4X Kit	565
Teac 1.20MB 5.25" Floppy Drive	\$ 70
Teac 1.44MB 3.5" Floppy Drive w/frame	60/65
Fujitsu KB-8720 Keyboard, 101 Key Soft-Tactile	38
Fujitsu KB-4720 Keyboard, 101 Key Click Tactile	65
MS "Natural" Keyboard, 104 Key Ergonomic	125
Focus 2001/2 Keyboard, 101 Key Enhanced	55
APC Personal SurgeArrest Strip w/Tel	45
APC Professional SurgeArrest Strip	65
APC Back-UPS 280/400/450/600VA	145/215/250/350
APC Smart-UPS 250/400/600/900VA	325/415/495/715

Demo & Used Equipment

AST Ascentia 910N DualScan Colour Notebook	\$ 2995
486DX2-50MHz CPU	
8MB of Ram	
340MB Hard Drive	
Toshiba Satellite T2100 Mono Notebook	\$ 1825
486DX2-50MHz CPU	
4MB of Ram	
260MB Hard Drive	
USR Sportster SI 14.4 Internal Fax/Modem	\$ 79
USR Worldport 14.4 PCMCIA Fax/Modem	150
NE2000 16-bit Ethernet Cards (some with manuals)	25
Colorado DJ-10 Tape Backup Drive (120MB)	50
Gateway 16-bit Ethernet Card	50
DataRace Redicard PCMCIA Ethernet Card (Coax)	125
TVM 3GLR 14" SVGA Monitor, 28mm dp, NI	300
WinLink File Transfer Software w/Parallel Cable	25
Intel Pentium 66MHz CPU	125

Printer & Accessories

Canon BJ-30 Portable Mono Inkjet Printer	\$335
HP DeskJet 600 Inkjet Printer, 300dpi, 4ppm	435
HP DeskJet 660c Colour Inkjet Printer, 600dpi, 4ppm(bk)	585
HP LaserJet 5L 1MB 4ppm, 600dpi	699
HP LaserJet 5P 2MB/5MP PS, 3MB, 6ppm, 600dpi	1275/1495
HP LaserJet 4+ 2MB/4M+ PS, 6MB, 12ppm, 600dpi	2125/2875
JetRam card with 1MB for IIP/II/IIID/IIP	\$115
HP LaserJet 4/4+/4M+ toner cartridge	155
Raven RP-2405 Printer, 24pin, 192cps	\$235
Raven RP-2407 Printer, 24pin, 192cps, Colour Upgradable	295
Raven RP-2420 Printer, 24pin, 256cps, Colour Upgradable	390
Raven RP-2467 Wide CarriagePrinter, 24pin, 240cps	595
Raven Color kit for RP-9105/2406/2420 printer	75
Serial kit for Raven printer RP2406/2420	65
Printer Auto/Rotary Switchbox 2:1/4:1	30/50

Computer Systems

486DX4-100MHz (AMD) PCI/VLB Computer Sys. w/Monitor	\$1415
Pentium-75MHz PCI/ISA Computer System w/Monitor	1825
Pentium-90MHz PCI/ISA Computer System w/Monitor	1965
Pentium-100MHz PCI/ISA Computer System w/Monitor	2025
Pentium-120MHz PCI/ISA Computer System w/Monitor	2135
Pentium-133MHz PCI/ISA Computer System w/Monitor	2375
Systems come with the following:	
486: 4MB of Ram, Pentium: 8MB, 635MB EIDE HD, 1.44MB Floppy,	
Daytek 14" SVGA Monitor, 0.28mm dp, NI, CL 5434 PCI w/1MB,	
Mid Size 19" Tower Case w/200W PS, Fujitsu KB-4720 Keyboard	
24 hr burn in, 2 years parts and labour warranty	
Sold with systems only:	
MS Mouse \$45, DOS 6.22 & WFWG 3.11 \$135, Win '95 \$155	
We do service too. Call for rates on both depot & on-site service	

Quality Computers, Knowledgeable Staff, Friendly Advice

I-Net Standards Identified

The Information Infrastructure Standards Panel (IISP), representing more than 80 standards developing organizations, corporations, industry associations, consortia, and government agencies, has identified close to 40 standards needed to implement the information superhighway.

At a two-day meeting in Milwaukee, the IISP addressed such standards issues as security,

copyright protection, and network interconnection.

The IISP, established in 1994, is a cross-industry standards effort sponsored by the American National Standard Institute (ANSI). The IISP aims to ensure that the standards needed to deliver products and services across the national and international information infrastructures are identified and developed.

"The group comprises a broad spectrum

of participants from the private and public sectors and from all industries, with more than 25 standards organizations working to determine where existing standards meet requirements and where additional standards development efforts are required," says Oliver Smoot, the IISP's chairman.

More information about the IISP is available on the group's World Wide Web page: <http://www.ansi.org/iisp/iisphome.html>.

Classical Music Comes to Web

Classical music lovers are being invited to a new Internet site on the World Wide Web to sample sound files contributed by conductor Joseph Rescigno of the Florentine Opera Company of Milwaukee.

Currently, the site (reached at Web address <http://www.concertatore.com/concertatore>) has Rescigno's excerpt from "Verismo," a CD of classical operatic selections (Analekta — AN 2 9602) featuring international diva Diana Soviero, accompanied by L'Orchestre de L'Opera de Montreal.

Besides sound files and information on the conductor and his performing schedule, the Concertatore Web site offers a discussion board where he addresses questions of a technical nature from professional and amateur musicians, scholars, and journalists.

PC Market Up 21 Percent

Industry trackers say the worldwide PC market reached 14.15 million units in the third quarter, up 21 percent from the 1994 quarter.

Dataquest Inc. researchers say that for the seventh consecutive quarter Houston-based Compaq Computer Corp. was the leader with 1.49 million. It was followed by Apple Computer Inc. with 1.28 million, IBM at 1.15 million, Packard Bell with 835,000 and NEC Corp. with 682,000.

United Press International reports Dataquest, citing strong growth in the United States and Japan and the economic recovery in Europe, predicts fourth quarter PC shipments should top 17 million.

Also Dataquest notes Apple has regained the No. 2 position for the year to date from IBM during the third quarter with its market share rising to 9 percent from 7.4 percent in the second quarter.

"On a year-to-year basis," says UPI, "Apple's third quarter represented a 20.5 percent increase, while Compaq's was up 21.6 percent. IBM gained 13.2 percent, low-end specialist Packard Bell jumped 30.5 percent and Japanese PC giant NEC was up 47.9 percent. Other PC makers shipped 8.72 million machines during the quarter for a gain of 19.9 percent."

Toshiba Has Speedy CD-ROM Drives

Toshiba America Information Systems Inc.'s disk products division has launched the XM-3701 series of 6.7-speed CD-ROM drives.

The drives support a 1,000K per second data transfer rate and a 120ms random seek time. Jerry Higgins, a Toshiba vice president, notes that the drives offer "the performance

I WANT ONE!

Fast 28.8K bps Data Modem/14.4K bps Fax modem

This modem can propel you across the information highway faster than ever before. Connect to the Internet at speeds up to 28.8K bps - the fastest speed available today!

Two Processors

A Pentium processor & IBM's powerful media processor share the work normally tackled by single processor for faster performance, higher quality images and richer musical sounds.

Total Image Video

It's just like going to the movies. With Aptiva, you get sharp full-motion video that's full-screen and true-to-life using MPEG technology. IBM's method of decoding compressed data gives you a more faithful reproduction than ever before!

Theatre Sound

You can have dynamic CD quality concert hall sound in your home for the latest videos, music and computer games - all with powerful minitower speakers using built-in amplifiers. With built-in settings, experiences your own audio environment such as jazz club, cave or outer space. Treat your eyes and ears to a whole new world for multimedia!

Rapid Resume

When you power on Aptiva, this exclusive IBM feature zooms you back, in seconds, to the exact place you left off. It's like an electronics bookmark.

Answering machine, phone and fax

Aptiva's Communication Center gives you everything you need to stay in touch with friends and business associates. Not only is it a fax, it's a phone with full duplex speakerphone, call screening, hold (with music), automatic redial, address book and speed dialer. It's also an answering machine with up to 9 private mailboxes and you can retrieve or record messages from any touchtone phone.

Online Housecall

Aptiva is backed by a new level in IBM service and support. A single phone line connects you to skilled IBM technicians who, when you authorize them, will "look" inside your Aptiva and repair most problems while talking to you - all with one phone call, on one phone line.

3 Year Warranty with Express Maintenance**

IBM's commitment to high quality and reliability is backed by a 3 year warranty with Express Maintenance (replacement parts are delivered to your door at no charge.) In addition, HelpWare experts are at your service, 24 hours a day, 7 days a week, at a toll-free number.

Wake-up on Ring

This exclusive IBM feature can automatically detect incoming calls, turns your Aptiva on, receive a fax or a phone message and then turns off again - all by itself. Hey, why should you do all the work?



not exactly as shown

Aptiva M71: 133MHz Pentium, 16MB RAM, 1.6GB HDD.

Aptiva M61: 120MHz Pentium, 8MB RAM, 1.6GB HDD.

Aptiva M53: 100MHz Pentium, 8MB RAM, 1.6GB HDD.

Aptiva M41 includes: Pentium 75MHz, 8MB RAM, 1.0GB HDD.

All of the above includes: Windows 95 quad-speed CD-ROM, 30 watt speakers, 28.8dp SVGA color monitor.

starting at **\$3299.99***

Welcome to the future!

Value & Performance



not exactly as shown

IBM 486/50MHz Tower
Pentium upgradable
4MB RAM
340M HDD
Multi-media
3 Year IBM warranty
14" .28 SVGA monitor
HP 540 DeskJet printer

\$1888.88*

*limited quantity

Over 40 software titles.

Aptiva comes with a rich array of preloaded award winning software for hours of education, entertainment and productivity. Total Image Video Bouns Pak with full screen MPEG clarity includes: Silent Steel - interact with actors.

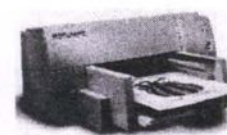
The Adventures of Hyperman - learn about the environment with this new cartoon. The Face of Life - revisit 36 years of Life magazine covers.

Flight of the Dream Team - fall through the sky with a team of skydivers. Compton's Interactive Encyclopedia. Quicken for Windows SE ... and much, much more!

All prices and specifications subject to change without notices. We reserve the right to limit quantities. Personal shopping only. No retailers. All prices subject to computer inspection & labor may be extra. Limited quantities on all advertised products. No rainchecks. While Quantities last!

HP 600 \$389.99*

*when purchased with any Aptiva systems



ComPu-2000
Technology Inc.

Web Site: <http://www.compu2000.com/>

Business Hours: Mon-Sat 10:00am - 6:00pm
Sun 1:00pm - 5:00pm

2811 Kingsway (next to Purdy's Chocolates), Vancouver, B.C. V5R 5H9

Sales: 604.436.2333 Service: 436.2666 Fax: 436.2619

necessary to support smooth full-motion video and complex high-end graphics transfers from CD-ROMs."

According to Toshiba, the 6.7-speed rotation is achieved through the use of enhanced error correction and a digital signal processor, as well as an improved optical pick-up head and spindle motor. The drives also support one-speed and two-speed rotations.

The XM-3701 drives employ the same variable speed playback system used in other Toshiba CD-ROM drives. The system allows the drive to read data before the disk reaches a specific rotational speed, allowing enhanced read times. Toshiba says the variable speed playback also decreases power consumption to an average 5.9 watts.

The XM-3701 drives are compatible with all major CD-ROM formats. The drives are available in internal and external models, priced at \$415 and \$515, respectively.

Maxtor Accepts Hyundai Buyout

Disk drive maker Maxtor Corp. has agreed to a \$223 million buyout from Hyundai Electronics Industries for the 63 percent of the company that the South Korean firm does not already own.

Maxtor agreed earlier this year to sell 37 percent of itself to Hyundai for \$150 million. This time, Hyundai has agreed to pay \$6.70 a share for the 33.3 million shares of Maxtor it does not own, according to United Press International in a report from San Jose, California.

McAfee Promises Net Virus Guard

With a new product called WebScan, McAfee Associates Inc. says it has come up with a way to protect Net surfers from downloading viruses on the Internet's World Wide Web.

McAfee officials told reporter Joan E. Rigdon of the Wall Street Journal that the WebScan software screens programs before they're downloaded and if it finds a virus, it warns the user not to continue.

Scheduled to ship by early next month, WebScan comes bundled with an email program and a Web browser made by Spyglass Inc., but will work with any other browser software, McAfee officials say.

Rigdon quotes security experts as saying WebScan is the first software that prevents viruses from electronically entering a computer by identifying the bug before the download actually takes place.

"Current antivirus software simply identifies a virus after it has arrived, giving it an opportunity to do damage," the Journal adds. "The introduction of WebScan points up some, little-known security holes in personal computers hooked to the Internet. Most people assume that antivirus software will alert them to viruses they download from the Internet. It will — but only when a user scans for viruses, which most people do only once a day, when they turn on the computer. Even then, the software simply identifies the virus."

Rigdon notes that existing antivirus software can be set so it checks for viruses any time a computer is ordered to do anything, but most people don't use this setting because it takes up too much memory and slows down the computer's performance.

"Also," she notes, "most people correctly think they can avoid getting viruses by not downloading anything from the Internet. But a new technology called 'server push' can lead people to unwittingly download programs simply by looking at a site on the Internet's graphical World Wide Web. ... Server push automatically sends tiny programs to a user's personal computer that allow the user to see fancier special effects."

McAfee CEO Bill Larson told the wire service that so far, no one has figured out how to plant a virus in a server-push program, but that WebScan would halt such a virus should it become a reality.

China Signs Internet Deal

Chinese officials have signed a contract with two firms to build a network called "Chinanet" with the aim of becoming one of the world's largest Internet systems.

Reporting from Beijing, the Reuter News Service says China's Ministry of Posts and Telecommunications signed the deal with its affiliate CTC Communications Development Co. and Asiainfo Computer Network, a U.S.-funded firm, for a nationwide network that will have 31 nodes to provide long-distance and high-speed Internet services.

THE BEST SOURCE OF MEMORY UPGRADES

DON'T WASTE YOUR MEMORY!!!

TALK TO US!! THE ONLY MEMORY CONVERSION CENTRE IN CANADA

SimmStack 4 X 30pin to 1 X 72pin converter

SimmStack 72pin slot doubler

350pcs SOLD -- 0% failure rate!!!

WATCH OUT FOR PROBLEMATIC IMITATIONS!!

Tested to runs with NOVELL, PC and Mac

NEW: SimmSaver 8 X 30pin to 1 X 72pin converter & SimmSaver 4 X 30pin to 1 X 30 pin converter

LIFETIME WARRANTY & MONEY BACK GUARANTEE!

We also offer the BEST price in SIMM and DIMM for Mac systems, hardware & software for Mac and PC at excellent prices. Call us to find out more!

2/E, 145-4471 No.6 Road Richmond, B.C. V6V 1P8

Tel: (604)821-1108 Fax: (604)821-0813 Fax-on-demand: (604)525-1089

Visit our Web site: <http://WWW.Starcon.com/discount/>

Get Price lists and weekly special by calling our fax-on-demand system.

If you would like to receive our weekly special fax, please register at 821-1108.

DISCOUNT COMPUTER CLUB



CHEAP! CHEAP! CHEAP! CHEAP! CHEAP!

電腦遊戲軟件 租售

**PC GAMES,
CD ROMS, CD Movies
RENTALS & SALES**

**Phone for a list of
consignment software**

**Phone for our
everyday low price
on new and used
games**



**GAMES LOVERS'
LIBRARY**

Bring in your Old Software For Sale or Consignment

140-9020 Capstan Way Richmond, B.C.

One block north of Cambie on Garden City, next to 7-11

Tel: (604) 270-7898

NT Nicer Computer & Services

Tel (604) 377-4982 Fax (604) 435-3222



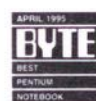
New



TS 37S Sub Notebook

- Intel 486 33MHz
- 4MB RAM
- 340MB Hard Drive
- 9.5" DSTN Color
- 1 PCMCIA Type II
- Trackball
- Ni-MH Battery

Special \$1499



SCEPTRE
Authorized Dealer

Canon BJC-210

Special \$385

- Includes 5 Program CD-ROM
- 360 x 360 dpi colour printing
- 2 years Replacement Warranty
- Uses the new BC-05 ink cartridge
- Canon's newest BubbleJet Model

Canon
Authorized Dealer

Acer A-Open Deluxe System 75MHz

- Intel Pentium 75 MHz CPU
- Triton Chipset, 256K Cache (Optional 512K Cache)
- ZIF, On-Board EIDE (Mode 4 & Bus Master Support)
- 2 Serial Ports (UART 166550 Support)
- 1 Parallel Port (EPP/ECP Support)
- AMI Plug and Play WinBIOS, EDO or Fast Page Mode Support
- Dallas 12887A CMOS
- 8MB RAM 72Pin 70ns exp to 128MB
- Seagate 1.08 Hard Drive (Mode 4)
- 14.4 Floppy Drive
- 15" Sceptre Digital Monitor
- 16" Acer Mid Tower Case
- S3 Trio 64D Graphic Accelerator Video Card 1MB
- 101 Windows 95 Keyboard
- 1.44 Fax Modem with Voice
- Microsoft Mouse
- Acer 5X CD-ROM
- Acer S32 w/Vibra 16 & Windows 95 Ready
- MS Home Bundle
- Delux 60W Speakers

**Special
\$2399**



Acer
Authorized Dealer

3 years parts and labour warranty.

Prices are subject to change.



Canon FUJITSU



NEC



**HEWLETT
PACKARD**



EPSON

TOSHIBA CREATIVE



WESTERN DIGITAL

Quantum

SCEPTRE

"Chinanet will have three high-speed international links," says Reuters, "and is expected to end congestion between Chinese users and international links."

The Xinhua Chinese news service quotes a ministry official as saying the project, scheduled for completion next June, will offer automatic national roaming with a Chinese interface in addition to existing internet services and will expand access to resources from other networks.

Reuters adds that China has established five international linkages to the Internet since it officially started in May 1994.

Big Birthday Greeting for Gates

What do you give the richest man in America for his 40th birthday? How about a world record-sized eight-foot greeting card with more than 5,000 signatures?

That's exactly what the organizers of a communications trade show plan to do for Microsoft Chairman Bill Gates. The signatures will be gathered from people attending MultiCom 95 Communications Expo and Conference in Washington, D.C., on Nov. 8 and 9.

"We're doing this because no other person has had a greater impact on the rapidly changing world of communications today than Bill Gates," says Geoffrey Lindsay, manager of

MultiCom 95. "And a 40th birthday is a big moment in anyone's life."

The giant card will be sent about a week after Bill Gates' actual birthday, says Lindsay. "Belated or not, he'll love it," says Lindsay.

The custom card features a computer-enhanced photo of Gates riding a CD, flying high above the earth. Details about the card will be submitted to the publishers of the Guinness Book of Records, says Lindsay.

TI Readies High-Speed '486 CPU

While the PC market is headed toward Pentium and Pentium Pro-level microprocessors, Texas Instruments Inc. sees

potential profits in an earlier CPU technology.

TI has introduced the TI486DX4-100, a 100MHz 486DX4 microprocessor, which it says offers high-speed performance at a fraction of the price of more advanced CPUs. The chip, which is set to ship in January, will sell for less than \$70 in quantity volumes.

"Most PC buyers have a limited budget, so they must balance the performance and features they need against the price," says Rick Bergman, marketing manager of TI's PC business. "The TI486DX4-100 allows PC systems to exceed the Microsoft recommended system performance for Windows 95 by more than 250 percent."

TI sees an especially fertile market for the new chip in Third World nations, such as China, Brazil, Mexico, Indonesia, Malaysia and India, where computer technology lags a generation or two behind systems sold in the U.S., Europe and the rest of the developed world. According to market researcher International Data Corp., compound annual growth rates for PC sales in these countries are predicted to be as high as 37 percent in the Peoples' Republic of China and 48 percent in India.

Toshiba Unveils DVD-ROM Drive

Toshiba Corp. says it has developed a prototype digital video disk-read-only memory (DVD-ROM) drive, and plans to launch a production version in late 1996.

The Reuter News Service reports that the drive is based on the standard proposed by Toshiba and six other electronics makers for DVDs, the next-generation storage technology for text, sound and images.

Taizo Nishimura, Toshiba's executive senior vice president, says the drive, which is up to nine times as fast as a conventional CD-ROM drive, is expected to replace CD-ROM drives soon.

Sun Offers New Desktops

A line of desktop workstations being promoted as including mainframe and supercomputer technology has been unveiled by Sun Microsystems Inc.

Reporting from Mountain View, California, United Press International says the Ultra family, based on Sun's long-awaited Ultrasparc chip, will start with a basic Ultra 1 at \$16,495 with three mid-range models going to \$60,000, "significantly less than similarly equipped rival machines," comments the wire service.

The new chip is a 64-bit processor with advanced graphics capabilities such as 3-D imaging without needing expensive add-in cards. It operates at speeds two to four times faster than previous Sun models sold at comparable prices.

Sega Games Come to PC CD-ROM

Sega PC, Sega of America's new computer games division, has begun shipping enhanced PC CD-ROM versions of many of the company's video game titles this month.

Comix Zone and Tomcat Alley are set to ship this week. Ecco the Dolphin is scheduled to ship prior to Thanksgiving.

BRAND NEW SAMPLE & USED PARTS DEAD & DAMAGED UPGRADES



NEW SHOP ADDRESS →

CE COMPUTER OUTLET
118-4800, No.3 Road, Richmond, B.C. Canada V6X 3A6
Tel: (604) 278-2633 Fax: (604) 278-2661

ATTN: Students, Electronic hobbyists & Smart buyers.

Build your own system or upgrade your system from 286 to 386 to 486.
We have a huge selection of new items in-stock.

WE TAKE TRADE-INS TOO!!

STORE HOURS

Monday-Friday
11:00am - 7:00pm
Saturday
11:00 am - 6:00pm
Sunday & Holidays
closed

- ◆ NEW AND USED COMPUTER PARTS & COMPONENTS.
- ◆ WE ALSO PROVIDE SERVICE, MAINTENANCE, REPAIR AND UPGRADE OF COMPUTER SYSTEMS.
- ◆ WE PROVIDE SERVICE FOR CHANGING POWER SUPPLY COOLING FAN AND MONITOR REPAIR TOO !
- ◆ FREE ESTIMATES BEFORE ANY WORK REQUEST.

PENTIUM PCI/ISA BUS

P - 75 \$1850 P - 120 \$2140
P - 90 \$1980 P - 133 \$2400
P - 100 \$2050 (Best Buy)
* Intel Triton Chipset motherboard w/ 256K Cache & Fan
* 8MB RAM (72PIN)
* 850MB Enhanced IDE HDD
* 1.44MB (3 1/2") Floppy
* PCI 1MB Video Card (exp. 2MB)
* Enhanced IDE I/O with 2 FAST 16550 Serial, 1 Parallel Port
* 15" N/I L/R SVGA .28dp, Monitor
* 13" Mini Tower Case
* 101 Enhanced Keyboard
* Mouse & Pad
Upgrade to 16MB RAM + \$345

UPGRADES:

- 2X CD ROM Package \$280
- 4X CD ROM Package \$399
with
- SB 16 Sound Card, Speakers
- MS Encarta 95, Works, Money and more

486 PCI BUS

	Intel	AMD
486DX4-120		\$1310
486DX4-100	\$1295	\$1275
486DX2-66	\$1270	

* GIGABYTE PCI/ISA Motherboard
* 4MB RAM (72PIN)
* 850MB Enhanced IDE HDD
* 1.44MB (3 1/2") Floppy
* PCI 1MB Video Card (exp. 2MB)
* Enhanced IDE with 2 FAST 16550 Serial, 1 Parallel Port
* 14" N/I SVGA .28dp, Monitor
* 13" Mini Tower Case
* 101 Enhanced Keyboard
* Mouse & Pad

- With 8MB RAM + \$175
- With 15" N/I L.R. Monitor + \$160
- Internal, Fax Modem
14.4 S/R \$99 28.8 S/R \$195

SPECIAL

USED MONITOR
14" VGA, SVGA
14" TTL, 14" EGA
12" TTL, etc.

COMPUTER ACCESSORIES (from \$1.00 & up)

Power Supply-

- Cooling fan
- Parts

Cables-

- Power Cord 6'
- Set of IDE/Floppy Cables
- IDE Cable
- Dual Floppy Cable

Cleaning Kits-

- 3.5" or 5.25" Head Cleaning Kit
- Mouse Pad
- MFM Cable (set)

Hardware-

- Screws, Studs, Edge Connectors, Cables, Rails, Etc...
- 30 Pin Simm Socket- (Modify sipp socket.)

TWO YEARS PARTS & LABOUR WARRANTY FOR SYSTEMS

Company Policy

- No cash refund
- No guarantee on availability of advertised items
- Most items have limited quantity, ie first come first serve basis.
- All sales are final.

- All above prices are for cash & carry only
- No visa or cheque will be accepted
- All brand new items have 1 year warranty
- All used parts * components have 30 days warranty.
- All obsolete & damage items have no warranty.

主機板
顯示器

機箱

磁碟機

記憶體

電腦用品

軟體

電腦升級

電腦系統

CASE FLOPPY DRIVE COMPUTER ACCESSORIES RAM MOTHER BOARD MONITOR

樣品和舊電腦 售零件 損壞的電腦和零件 全新電腦和大量零部件

LEADING THE CHARGE



WINPACK 95

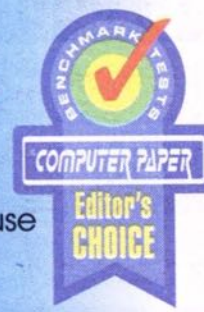
Allows you to

JUMP Start

your Windows® 95 applications!

No doubt about it, Windows® 95 –Microsoft's newest 32-bit operating system, will change the way computers are used! To maximize the advanced features of its new 32-bit applications, Windows® 95 will demand the ultimate from your hardware. COMTEX has met the challenge with their **Winpack95-55CMS**.

The winner of the
COMPUTER PAPER
Editor's Choice for
Pentium Powerhouse
(August 1995)



has added

WINNER
August 1995

Microsoft's
Windows® 95 and
a host of multi-
media goodies to
produce the
ultimate in Pentium
performance!

With Intel's 133 MHz
Pentium CPU
added to our
U.S. made



SUPER TRITON
PCI mother-
board with
pipeline

burst synchronous cache, it blows the doors off the competition. Adding a multimedia PCI video card with 2 MB VRAM and a speedy 1.6 GB Mode 4E-IDE hard drive gives you speed to burn. We finish the system off with a Quad speed CD-ROM drive, 16-bit sound card and a 14,400 bps voice/ fax/ data modem to make sure that the **COMTEX Winpack95-55CMS leads the charge in the Windows® 95 hardware sweepstakes.**



All Registered Trademarks and other Trademarks are of their respective Companies.
The Intel Inside Logo is a trademark of Intel Corporation.
Microsoft, MS-DOS and Windows are either registered trademarks or trademarks of Microsoft Corp. in the United States and / or other countries.

Call us for your nearest COMTEX's Dealer
COMTEX MICRO SYSTEMS INC.

Head Office
#100-13751 Mayfield Place
Richmond, British Columbia,
Canada V6V 2G9
Tel: (604) 273-8088
Fax: (604) 278-2818

Branch Office
#7-3610 29th Street N.E.
Calgary, Alberta,
Canada T1Y 5Z7
Tel: (403) 250-3386
Fax: (403) 250-8092

Sales Service & Support

486DX4-120MHz Multimedia

- As Fast as Pentium P75
- 8MB RAM, 14" SVGA Monitor 0.28 dp
- 850MB HD, 1.44MB Floppy Drive
- Enhanced IDE/IO Controller
- Trident 9440 32 bit, 1MB
- 4X CD-ROM, SoundBlaster 16
- Grolier Encyclopedia, U.S. Atlas
- World Atlas, Chess Master 4000
- Animals, Speakers, Mouse

Special Pricing \$1889

Christmas Specials

- Canon BJC 4000 Color Inkjet \$409
- Toshiba T2130 CS, Color \$2899
- 8meg RAM, 540meg Hard Disk

2 year parts and labour warranty



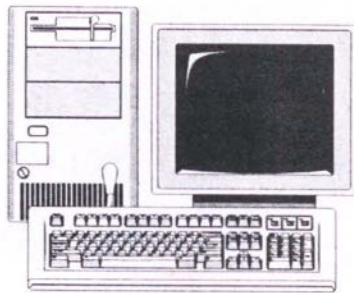
INTERTECH

OFFICE AUTOMATION DISTRIBUTION INC.

4317 Fraser Street, Vancouver, B.C. V5V 4G4 Tel: (604) 872-7337 Fax: (604) 872-2524

Christmas store closing from Dec. 23th to Jan 1st.

HOURS: MON-FRI 10:30am - 6:00pm, SAT. 10:00am - 4:00pm



PENTIUM Processor P100 Special

- Intel Pentium Processor
- Triton Chipset, Plug & Play BIOS
- 14" NI LowRad SVGA, .28dp
- 850MB Hard Drive
- Trident 9440 PCI Video Card
- 1.44MB Floppy Drive, 256K Cache
- Deluxe Minitower Case 200 Watt PS
- Fast 16550 Serial Com 1&2
- Keyboard & 2 Button Mouse

8MB RAM \$1899
16MB RAM \$2239



Member of the
Better
Business
Bureau



Sega PC also says its Virtual Fighter Remix game is now available in a bundle with a multimedia accelerator from Diamond Multimedia.

Sega's PC games are compatible with Pentium PCs running Windows 95.

Netscape Completes Collabra Buy

For \$185.5 million in stock, web browser publisher Netscape Communications Corp. has completed acquisition of closely held Collabra Software Inc., a producer of a groupware program that competes with Lotus Notes.

New Storage Plans Researched

High-speed holographic data storage systems holding many times the information of today's largest magnetic hard disk drives are the goal of a new research alliance by the University of Dayton's Research Institute, IBM, Stanford University and others.

In Dayton, Ohio, university officials told United Press International the potential applications are enormous, ranging from satellite communications to high-speed digital libraries.

They added that the optical storage system could hold more than 12 times the information of today's largest magnetic hard disk drives and maintain data input and output rates more than 10 times faster than now possible.

Steve Gustafson, UDRI senior research scientist and an associate professor of electro-optics, elaborated, saying, "To do that, we use

micromirrors so small that 10 of them would fit across a strand of hair. These mirrors move up and down like a trampoline and are designed to enable optical interference in the crystal that stores the data."

Gustafson notes that holographic data storage uses lasers to store information as "pages" of electronic patterns within the volume of the special optical crystal. Because a million or more data bits are placed on each page and thousands of pages can be stored in material no larger than a small coin, he said, holographic systems offer the possibility of compact devices holding trillions of bytes of information.

Also, since there are no moving parts and all the information on each page is accessed simultaneously, the technology also has the potential for very rapid access to any of the stored data at speeds more than 10 times faster than is possible today.

Big Business Halfway Into the Web

Slightly more than half of the world's 50 largest corporations — 54 percent — have established a corporate presence on the Internet's World Wide Web and are using their sites to communicate a variety of information to their key audiences, according to a review conducted by the New York office of Ketchum Public Relations Worldwide.

Ketchum reports that 27 of the world's top 50 corporations have established Web sites. Fourteen are Japanese companies, 9 sites belong to U.S. corporations, three are German, one is a British-Dutch company and one is Italian.

MyCom Computers

Mon-Sat
10:30am-6:30pm

TEL (604) 739-2827 FAX (604) 739-2820

4244 Dunbar St, Vancouver, B.C.

Dunbar & 26th Ave.

PENTIUM SYSTEM P90 \$1688 P100 \$1768 P120 \$1938



- Intel PENTIUM CPU
- Intel TRITON CHIPSET
- 101 Enh. Keyboard
- 8MB RAM
- 850 MB EIDE HD
- 1.44 MB FDD
- PLUG & PLAY BIOS
- PCI Enhanced IDE Controller

- PCI SVGA CARD W/1MB DRAM
- Mid Tower Case
- 256 KB Cache
- 14.4 fax Modem
- 200W Power Supply
- Mouse & Pad
- Monitor Extra
- 2 Years parts & labor warranty



X'mas Special.....Mmm!! That's a Good Idea!

CREATIVE LABS CD
PACKAGES VALUE CD \$375
DISCOVERY PnP \$450,
PREFORMACE \$515

iomega ZIP 100 Drive \$329
Cartridges: \$29

Canon BJC 4000 \$435
New BJC 210 \$449



THE FASTEST HARD DRIVE WITH REMOVABLE CARTRIDGES
SyQuest EZ 135 Drive \$345 cartridges:\$30

External SCSI for PC/MAC
or Parallel for PC

FUJITSU brother SCEPTRE

Keyboard with 3D Surround Sound

NMB Technologies Inc., the highest volume keyboard manufacturer in the world, joined with SRS (·) Labs, a leader in audio technology, to produce the Right Touch™ Concert Master™ multimedia keyboard.

SRS's technology, Sound Retrieval System, produces a three-dimensional sound image from any audio source with just two stereo speakers. The keyboard features SRS 3-D stereo which creates a surround sound experience, and brings all sound/audio controls to the keyboard. This includes volume, mute, SRS stereo on/off, and a built-in microphone.

The ConcertMaster keyboard features: 3 side jacks for headphone, microphone and subwoofer; allows any audio device, such as external speakers, to plug into the keyboard; includes an integrated shielded speaker system with 2+2 watt amplifier; is compatible with all soundcards and portable audio devices; includes 3 new keys for Windows® 95 aware software. They are: application, left Windows, and right Windows. The application key brings up the content (pop-up) menu at the current select position. This is the equivalent of pressing the right mouse button in some applications today. Pressing the application key will not disturb the current mouse pointer position. The left Windows key sets focus to the Windows 95 user interface. The right Windows key has the same functionality as the left Windows key.

The keyboard incorporates a power slide switch which allows the user to turn on speakers or internal microphone without affecting the keyboard's functionality. It has a single cord exit for easy connection.

Supercom pulls down BC New Canadian Entrepreneur Award

Supercom, Vancouver operation, won the 1995 BC New Canadian Entrepreneur Award in the Wholesale Category. It was voted by the industry as the number one distributor of computer products in the country. Supercom earned it by providing their customers with top products, highly skilled technical support and by their ongoing efforts to understand the needs of the market. Charlton Lam, General Manager, started the Supercom Vancouver operation in 1989. The company has grown since then. In July, 1995, the company obtained its ISO 9002 Certification. Charlton is one of the founders of the Western Canada Computer Distributors Society. He is the current president of the WCCDS.

Supercom is one of the larger computer product distributors in Canada. The company distributes over 1,500 products to over 7,000 resellers across Canada. It is headquartered in Markham, Ontario. The company is currently setting up its Montreal sales office to serve the Quebec and Eastern markets of Canada.

Last December 17, 1994, Supercom was selected by the Financial Post as one of Canada's 50 Best Managed Private Companies. □

The SRS (·) differs from stereo and traditional sound expansion techniques because it is based on the human hearing system. It retrieves the spatial information from recordings and restores the original three-dimensional sound field. As a result, the reproduced sound is much closer to a live performance.

ConcertMaster is 100 percent compatible with 286 or higher processor, Novell Netware, DOS, Windows 3.x and Windows 95. NMB Technologies has



received Microsoft Compatibility Labs' approval. ConcertMaster has been approved for logo usage by Creative Labs SoundBlaster compatibility. The Right Touch ConcertMaster keyboard is available for the 1995 holiday season through Ingram Micro and Almo Distributing, and retailers nationwide. The manufacturer's SRP is \$199.95, street pricing could hover around \$139. □

For more information, contact: NMB Precision Inc. at (604) 990-0889



SPECS Custom Software Inc.

presents the

Designer Computer Covers

Ask for them at your LOCAL computer stores.

Choose from sixteen different vibrant colours and bring HIGH FASHION to your office at home or work. These covers are NOT the ONE LARGE SIZE fits ALL concept.

Hand made in Langley, British Columbia, CANADA from 100% rip-stop nylon. This soft WATER PROOF fabric is used to make ski-wear.

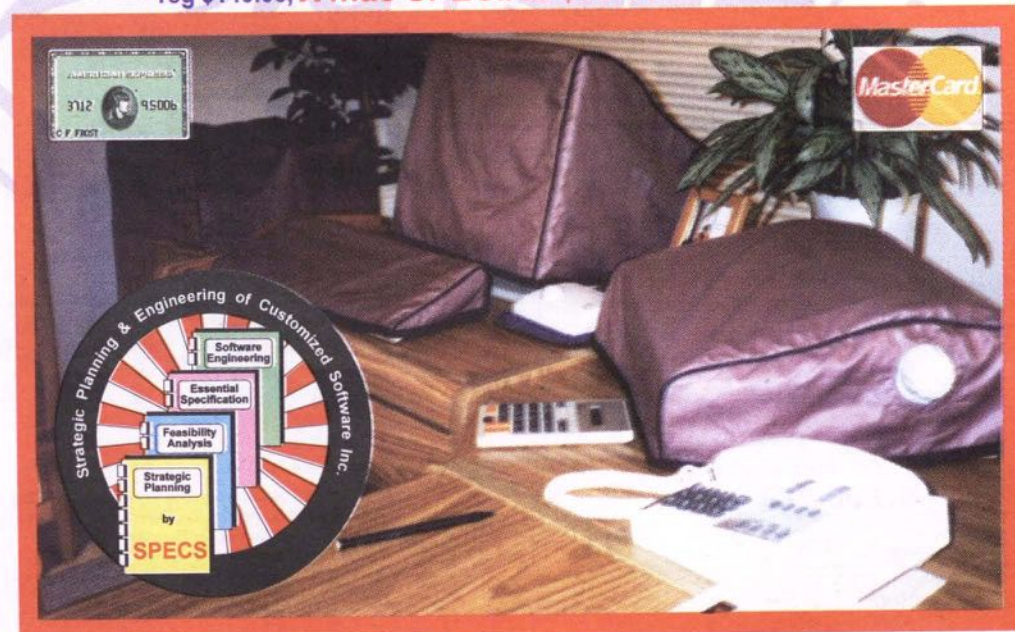
Each component is CUSTOM MADE to the right SIZE and its UNIQUE DESIGN to provide PROPERLY FITTING COLOURFUL covers.

PROTECT your investment from the accumulation of DUST.

The following CHRISTMAS PRICES are in effect ONLY while quantities last.

One PAIR: - (1-Monitor, 1-Keyboard covers)
- reg. \$60.00, X'mas SPECIAL \$45.00

One SET: - (1-CPU, 1-Printer, 1-Monitor, 1-Keyboard covers)
- reg. \$140.00, X'mas SPECIAL \$99.00



For PROMPT SERVICE and SPECIAL DELIVERY call us at
Tel: (604) 882-9086 or Fax: (604) 882-9085

SEARCHING FOR EXCEPTIONAL PERFORMANCE? CHECK OUR REFERENCES!

PC Magazine stated, "The Soundx Series 3000 Pentium 90 and 75 stand out for their exceptional performance." PC Magazine tested 80 notebooks from other leading manufacturers and found "... (Soundx) units' performance were at or near the top of their respective categories."

"The full featured Soundx Pentium 90 is geared towards corporate power users. The value-class Soundx Pentium 75 provides Pentium-level power in a more cost effective solution..... performance sets the Sceptres apart from the pack."



Byte Magazine rated The Soundx Multimedia Pentium Notebook "Best Overall," stating it "excels in overall performance..... we awarded the best color-quality to Soundx."

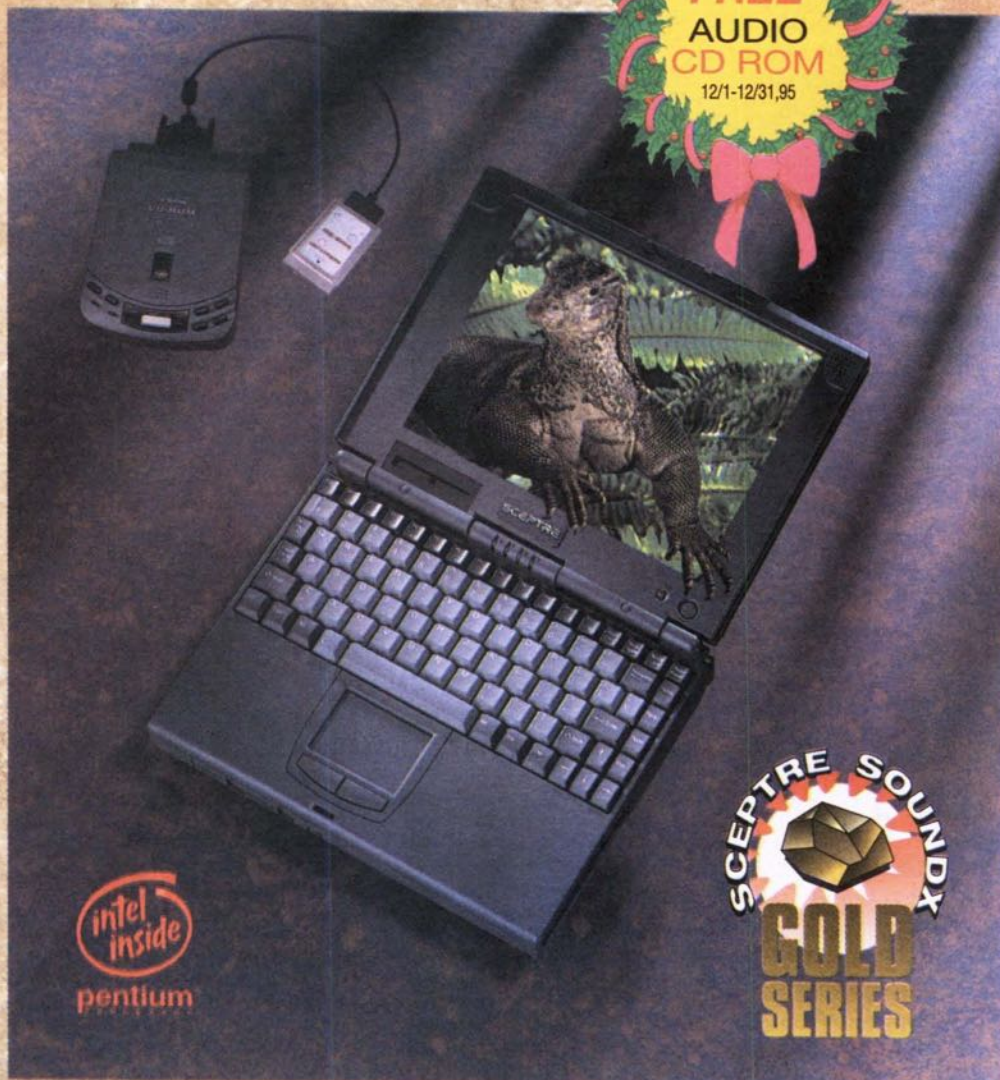


PC Digest also rated the Soundx "Number 1 Overall" with a 4 star rating.

Sceptre is, again, back to the future with the latest release of another advanced quality product-----the **NEW Soundx Series 3200 Pentium Notebook**. In keeping with Sceptre's tradition for state-of-the-art technology the slim-line Series 3200 is lightweight, and modularized. It also offers an innovative "flat-pin" CPU design to reduce heat, and a PCI Interface for faster access speeds.

Other Soundx features include larger SVGA Hi-Resolution screen display than previous models, excellent battery life, conveniently placed touchpad, handsome attache, and a three year warranty in the USA.

For more information call
800-788-2878



SCEPTRE®
EXCELLENCE FOR ALL THE WORLD TO SEE

LAPRO
(604)244-7798



Please call us for more information, brochures and a free "Baby Brutus."



SCEPTRE donates a portion of all profits to the Zoological Society of San Diego in support of C.R.E.S., the Center for Reproduction of Endangered Species.

© 1995 SCEPTRE Technologies, Inc. All Rights Reserved. All product and brand names are trademarks or registered trademarks of their respective companies. The Intel Inside Logo and Pentium are registered trademarks of Intel Corporation.



PC-TOP

COMPUTERS & ELECTRONIC CO., LTD.

NOTEBOOK COMPUTERS

486 Smart Book CD-Pro

"The fastest 486 Base Multi-Media Notebook"

Intel 486DX4-100
2x CD-ROM (Removable)
11.3" DSTN Colour Display
16-Bit Microsoft Sound System
1MB Video Card
16MB RAM
520MB Hard Drive
2 - Built-In Stereo Speakers
Track-Point Mouse
Targus Carrying Case
NiMH Battery
15/1P/1Game/Midi Port
PCMCIA Type IV, (one Type III & one Type II)

SPECIAL

Special \$3,975

486 PCI-BUS SYSTEMS

Intel 486DX4-100 \$1220
AMD 486DX4-100 \$1195
AMD 486DX4-120 \$1225

Mainboard 486DX w/256K Cache
Zip Socket, 3 PCI Bus Slots
Built-In EIDE/IO (2 Fast Serial, 1P & 1G)
4MB RAM, 72pin, 70nsec
Panasonic 1.44 MB 3.5" Floppy drive
540 MB Hard Drive EIDE
PCI-Bus SVGA Card w/1MB DRAM
14" (NI) Monitor, 0.28dp SVGA
101 Enhanced keyboard
Mini Tower Case w/200w CSA Approved
Serial Mouse w/Pad

Special of the Month

PENTIUM SYSTEMS



P - 75PCI \$1,639
P - 90PCI \$1,769
P - 100PCI \$1,828

Main board by GIGA BYTE PCI/ISA w/256K cache
Built-in EIDE/IO, (2 Fast Serials, 1Parallel)
8MB RAM 70nsec. 72pin (Exp. to 128MB)
Panasonic 1.44MB Floppy Drive
1.08GB Fast EIDE Hard Drive (Support Mode 4)
PCI-Bus SVGA Card w/1MB DRAM
Acer 14" (NI) 0.28dp SVGA (ISO 9002 Certified) Monitor
Mid Tower w/230W CSA Approved Case
101 Enhanced Keyboard
Serial Mouse w/Pad
2 Years Parts & Labour Warranty

P - 75PCI \$1890 P - 120PCI \$2168
P - 90PCI \$2020 P - 133PCI \$2425
P - 100PCI \$2079

Main board by Acer w/256K cache, 4PCI Slots
Built-in EIDE/IO, (2 Fast Serials, 1Parallel)
8MB "EDO" RAM 60nsec. 72pin
Panasonic 1.44MB Floppy Drive
1.08GB Fast EIDE Hard Drive (Support Mode 4)
Acer PCI 64Bit Video Card w/1MB DRAM
(2MB upgradable) Designed for Windows 95
Sceptre 15" (NI) Digital, Flat, SVGA 0.28dp
(Award Winner) Monitor, MPRII LR
Mid Tower w/230W CSA Approved Case
101 Enhanced Keyboard, Serial Mouse w/Pad
2 Years Parts & Labour Warranty

Special upgrade options with the above purchased systems:

* Creative Lab Value CD 4X w/11 Titles and speakers \$359
* Supra Express 28.8 Internal S/R/Fax Plug and Play Modem \$199
* "NEW" Canon BJC-210 Color Bubble Jet w/CDs Software \$370

1090 Kingsway,
Vancouver B.C. V5V 3C6
Phone: (604) 879-3232
Fax: (604) 879-1266
Mon. - Fri. 10:30a.m. - 6:30p.m.
Sat. 11:00a.m. - 5:00p.m.

PRINTER, FAX AND
MODEM SPECIAL

Canon BJC 4000 Color Bubble Jet \$405
"New" Canon BJC-210 Color Bubble Jet \$395
Brother HL-660 600dpi, 6ppm, w/2MB RAM \$725
Supra Express 28.8 S/R/Fax INT. \$210
Plug & Play, Designed for Windows 95
USR 28.8 Int. S/R/Fax V.34 \$255
USR 28.8 Ext. S/R/Fax V.34 \$285
USR 28.8 Vi Int. S/R/Fax/Voice \$280

We also carry other Brand Names
please call for prices.

MONITORS

Acer 14" (NI) 0.28dp ISO 9002 Certified \$330
Acer 15" 566 (NI, LR (MPRII)) ISO 9001 Certified ... \$485
Sceptre 15" Digital, Flat NI, LR \$469
MAG DX 17F 0.26dp SVGA \$899
SAMSUNG Gls 17 0.26dp SVGA Plug & Play \$1295

We also carry other brands: SONY, NEC,
ADI, Viewsonics, Mitsubishi, etc ...

Please call for every day lowest prices

EC 9001C \$360
EC 9001S (NEW) ... \$385
CA 888/5 \$560



好易通全新超薄型發聲電腦辭典
Authorized dealer of Golden Dictionary
(Mandarin/Cantonese/English/ Vietnamese)

MULTIMEDIA PACKAGES
& CD-ROM DRIVES

Creative Labs Packages Call
Diamond Packages Call
ACER 4X CDROM Drive (Sony Engine) \$189
Toshiba 5302B 4X CDROM (IDE) \$215
Panasonic 4X CD-ROM Drive CR-581 \$189
SB-16 w/Panasonic Interface \$105
Panasonic 2X CD-ROM (Bare drive) \$69
Sound Blaster 16 Bit OEM (with IDE Interface) \$69

HARD DRIVES SPECIAL

Fujitsu 544MB EIDE, Mode 4, 256K 9msec \$239
Fujitsu 1.09GB EIDE, Mode 4, 256K, 9msec \$315
Fujitsu 2.1GB SCSI II, 256K, 9msec (5 Yr.) \$990
Fujitsu 3.1GB SCSI II, 256K, 9msec (5 Yr.) \$1230
WD 635MB EIDE, Mode 3, 10msec \$249
WD 850 MB EIDE Mode 3, 10msec \$285
WD 1.08GB EIDE, Mode 4, 10msec \$325
WD 1.28 GB EIDE Mode 3, 10msec \$395
WD 1.6 GB EIDE Mode 4, 10msec \$499

For others Brand Name or SCSI HDs, please call.

Prices are based on COD only and subject to change without notice.

NEC

Canon

ADI

brother

FUJITSU

Seagate Buyout of
Conner OK'd

Antitrust regulators with the Federal Trade Commission have cleared disc-drive maker Seagate Technology Inc.'s proposed \$1.04 billion buyout of rival Conner Peripherals Inc.

Reporting from Scotts Valley, California, United Press International notes the merger, which will make Seagate the world's top producer of drives, still must be approved by stockholders of both companies and by the Commission of the European Union.

"The two companies' combined share of the booming market for drives is about 35 percent," says UPI, "and will move Seagate into the business of tape drives — used to back up disc drives — and software for managing memory in computer networks."

Apple Buys 5.1% of
American Online

Apple Computer Inc. has exercised a warrant and acquired a 5.1 percent stake in America Online, paying \$12.5 million for 2 million shares of the Vienna, Virginia, online service.

Reporting for the Reuter News Service, writer Eric Auchard says some analysts think the move signals that Apple may be moving to dispense with eWorld, its own proprietary online service.

Analyst Bruce Lupatkin of Hambrecht & Quist told the wire service that eWorld, despite praise for its easy-to-navigate interface, has failed to make its mark as a broad-based online service brand.

Soundview Financial analyst John Maxwell added, "At this juncton, (Apple) probably won't admit it, but eWorld isn't going anywhere."

Apple acquired the warrant, reported in a filing with the Securities and Exchange Commission, in connection with a software and licensing agreement it signed with AOL in December 1992.

Acquisition Rumors Swirl

Acquisition rumors are once again sweeping the PC industry. The latest reports have IBM Corp. making a bid for Novell Inc., and IBM and Hewlett-Packard Co. making separate offers for Apple Computer Inc.

The Reuter News Service says IBM CEO Louis Gerstner is declining to comment on the reports. "I have no comment on rumors," Gerstner told reporters at the company's booth at the COMDEX/Fall computer industry trade show. "You know that I have no comment on speculations." Apple, HP and Novell representatives also declined to comment.

Trade journal Infoworld, citing sources close to Apple, says IBM is offering between \$70 and \$75 per share for Apple while Hewlett-Packard is interested in a swap of between 0.8 and 1.1 shares of HP stock for each Apple share. Based on Monday's closing prices, HP's bid would be worth between \$74.70 and \$102.71 per share.

MF-2HD
10 pack

RESELLERS WANTED

**Best Quality
Best Prices
Best Packaging**

MICRO FLOPPY DISK
25 pack

CD-ROMs
More than 500 titles
Bundle Pack / Commercial Art /
Graphics / Business / Education /
References / Games / Medical /
Photo CD / Kid Stuff / Shareware /
CDI / VCD / MPEG CD-ROM

New Video CD titles
VCD / MPEG graphic accelerator
Multimedia accessories
Arrival

DATAHOME.
INFOSYSTEMS #263 - 13986 Cambie Road, Richmond, B.C., V6V 2K3
TOLL-FREE 1-800-361-DISK (3475) IN VANCOUVER CALL 604-278-3584 FAX: 604-278-0532

Strong

COMPUTER INC.

101-1926 West Broadway,
Vancouver, B.C. V6J 1Z2
Tel: (604) 739-0438
Fax: (604) 739-0436
Business Hours:
Mon.-Fri. 10:00-18:00 Sat. 12:00-17:00

Pentium® PCI Bus

75MHz
\$1950

90MHz
\$2080

100MHz
\$2150

120MHz
\$2250

133MHz
\$2500

Intel® Triton Chipset, Plug and Play Ready
256K external cache
8MB RAM (72 Pin)
1.44MB (3.5") Floppy Disk Drive
1.08GB Enhanced IDE Hard Drive
On Board PCI EIDE HDD Controller (control up to 4 IDE devices)
On Board 2 UART 16550 Serial, 1 Parallel (EPP/ECP) Ports

- ATI Mach 64, 64 bit SVGA PCI Card w/2MB RAM
- 15" SVGA Non-Int. Color Monitor (1024x768NI @72MHz) L.R.
- 13" Mini Tower Case w/200W CSA Approved Pwr Supply
- 101 Key Enhanced Keyboard
- Microsoft 2 Button Serial Mouse
/ Logitech 3 Button PS/2 Mouse

486 PCI® Bus

AMD 486DX4 - 100
\$1480

INTEL 486DX4 - 100
\$1530

. 256K Cache
8MB RAM, (72pin)
1.44MB (3.5") Floppy Disk Drive
850MB Enhanced IDE Hard Drive
PCI Enhanced IDE HDD Controller
(up to 4 EIDE drives)

- 2 UART 16550 Serial, 1 Parallel Port
- Cirrus Logic 5434, PCI 64bit GUI SVGA Card w/1MB
- 14" SVGA Non-Int. Color Monitor (1Kx768, .28mm) L.R.
- 13" Mini Tower Case w/200W CSA Approved Pwr Supply
- 101 Key Enhanced Keyboard
- 2 Button Serial Mouse

Upgrades:

RAM 8MB => 16MB	\$350	SVGA Monitor 14" => 15"	\$135
8MB => 8MB EDO RAM	\$40	SVGA Monitor 15" => 17"	\$400
HDD 850 => 1.08GB	\$50	Tower Case 13" => 19"	\$25
1.08GB => 1.2GB	\$70	14.4K Internal Fax Modem w/ Voice Mail	\$90
850MB => 1.2GB	\$110	28.8K V3.4 internal Fax Modem	\$195

*** Multi Media Upgrade Kit Add Only \$300 ***

*** (Quad speed CD ROM, Sound Card 16, 2 Speakers) ***

* Free Estimate on Repairs and Upgrades *

All Systems: 2 Years Parts and Labour Warranty

Prices subject to changes. Please call for the latest prices

星強
電腦公司

Buying a Pentium

John A. Hosh

You want to buy a Pentium. You want to know what kind of Pentium to buy and where to buy it. I have recently become the proud owner of a Pentium. My story may help you.

First, I made a list of specifications. At the top of my list, I put Flash BIOS. The flash built-in operating system allows a user to upgrade the computer's functionality, if the manufacturer recommends it, without replacing any hardware. The user can upgrade by using the manufacturer's software. The Intel Triton chipset uses a Flash BIOS.

Next, I considered how much RAM I should buy. Microsoft says that one can run Windows 95 with 4MB, but it recommends 8MB. The Word for Windows 95 packaging says that Word needs 6MB. The packaging for Works for Windows 95 says that it can make do with 6MB but it recommends 8MB. In its manual for Word for Windows 95, Microsoft states that if one wants to use Word as an e-mail editor, then one should have at least 12MB of RAM. Configurations of 8MB and 16MB are common. Everybody says that more is better. To be certain that my computer would never dawdle in processing my commands, I added to my specification that I should be able to add RAM up to 128MB, the most common degree of expandability offered. A couple of months ago, that would have been the end of the matter, but now one must decide on the flavour of the RAM that one wants. Does one want plain, vanilla RAM or does one want the new, refreshing EDO-RAM? "Extended data out RAM" moves the computer's processing speed up one notch (Pardon the technical jargon.) from the plain RAM's processing speed. This increase in speed means, of course, that EDO-RAM costs a little more than ordinary RAM. Moreover, EDO-RAM requires that the computer have a chipset that supports EDO-RAM, and that the computer come equipped with a "pipelined burst cache." Without this special cache, the computer will not make optimum use of the EDO-RAM. The pipelined burst cache uses synchronous SRAM [good] (rather than asynchronous SRAM [bad]) to keep on hand the contents most recently used in RAM. The cache thereby speeds up the

computer's processing. The cache comes in two sizes at present: 256KB and 512KB. I read somewhere that 512KB makes sense only with a system that uses 32KB RAM or more. The pipelined burst cache is, of course, an extra cost. The two chipsets that support EDO-RAM, at the moment, are the Intel Triton and the Symphony Rossini. I specified the Intel Triton because most manufacturers are offering it.

After making my choices with regard to RAM, I considered graphics adapters, also known as graphics accelerators or video cards. The video card is responsible for the colours and presentation of the images on the screen. The card may be 32-bit, 64-bit, or 128-bit. It may use DRAM or VRAM or EDO VRAM or WRAM. Common configurations use 1MB or 2MB of RAM. Users who intend to run demanding graphics or design programs may opt for 4MB and beyond. As one moves from 32-bit to 128-bit, the price increases. As one moves from 1MB upward, the price increases. As one moves from DRAM up to WRAM, the price does not necessarily increase, but performance will. DRAM can be really slow. Not all boards allow additional video RAM to be added if the user decides later that he or she wants better performance. The newest 64-bit cards provide full-motion video, that is, they can play video at thirty frames per second, fast enough to resemble television. With additional hardware or with the appropriate software, the new 64-bit cards will play MPEG movies (on CD). The Matrox MGA Millenium (WRAM) provides built-in, 3-D, hardware acceleration. Some cards offer such features as on-the-fly resolution-switching, zoom, and the virtual desktop. I made my choice of video card with regard for the reports in the magazines and upon the assurance of my manufacturer that it would "support the card." In hindsight, I suggest that the buyer of a video card pay attention, beyond price, speed, and features, to whether Microsoft has certified the card to be Plug and Play, whether the card's manufacturer provides software that will work with Windows 95, and whether the card's manufacturer has a good reputation for service! I will say more about my suggestion later.

I settled on 2MB of VRAM or WRAM as being best for my purposes, and moved on to choose a monitor.

Attending to details. Serving you in the finest way.
Computer Accessories Specialist

Perfecting your computer business
with quality and durable accessories.



Partners with your computer
ACPI

Canada's Biggest Power Bar Wholesaler

Dealer Only

OEM Mouse Pad, Mouse, Power Bar available.
"FullMark" ribbon BC exclusive distributor.

#120-13751 Mayfield Place, Richmond, B.C. Canada V6V 2G9
Ph: (604) 278-2811 Fax: (604) 278-1211 toll free: 1-800 567-7227

Logitech
P.O. LOCK
Champ JetRam™
SONY.
Fullmark
TRIPLITE
"THE POWER PEOPLE"
AMQUEST.
3M

Monitors come in sizes 14, 15, 17, and 21. They should be non-interlaced (NI) and warranted for at least three years. They may have a dot pitch of .28, .27, .26, or .25. The .25 provides the sharpest picture, and, you guessed it, is the most expensive. The trend in monitors is toward Plug and Play: you connect the electrical cords, turn on the computer and the monitor, and everything works. With monitors, the user's principal consideration is the appearance of the screen. The screen's appearance depends, first, on its vertical refresh rate, that is, how many times per second the monitor redraws the screen. The Video Electronics Standards Association recommends a standard of no less than a 72 Hz refresh rate at any resolution. A refresh rate below 72 Hz causes the screen to flicker. The screen's appearance depends, second, on details such as brightness, contrast, alignment, and convergence. I depended on the magazines to tell me which monitors produced the best image. I was also concerned about the amount of radiation that a monitor might emit. I learned that monitors with devices to reduce radiation are rated as either MPR II or TCO, TCO being a stricter standard. Finally, I paid attention to the numerous commentators who say that a 17" monitor is the only way to go. The problem with smaller monitors is the clutter produced by the close assembly of windows, icons, taskbars, and the like that the user creates when he or she opens several applications at once. The problem with 17" and 21" monitors is their cost and their weight. They are heavy beasts!

Having decided what monitors I would consider, I put an 850MB to 1GB

hard drive on my list of specifications. I specified that the hard drive should not have a greater than 10 millisecond seek-time. Some of the less expensive drives dawdle, taking 11 and 12 ms as their seek-times. Someone who wants a computer for correspondence and a few games might find a 540MB hard drive and a slow seek-time adequate. I made my decision taking into account, first, the rule that one can never have too large a hard drive. Second, I noted that the cost of a medium capacity drive is not much greater than the cost of a smaller hard drive.

Next on my list, I put a quad-speed CD-ROM. I could have selected a double-speed CD-ROM, but the reports are that the double-speed is a tortoise. The quad-speed has good performance at a tolerable price. The sextuple-speed is fast and expensive.

To complement my CD-ROM drive, I selected a 16-bit sound card. A faster card, the 32-bit card is available, but for the budget-minded, the 16-bit card is a good performer. The user who wants to have access to the greatest wealth of software for the production of music should ensure that the sound card which he or she selects is Sound Blaster compatible. Sound Blaster is the industry's standard. If the user wants to connect a keyboard, he or she should also want to know whether the card has a MIDI interface. The speakers that retailers offer as part of their multi-media kits are apparently adequate.

Next, I put a 19" mid-tower with 230W power supply on my list. I have observed that towers come as mini, midi, and full size, and with power supplies



PRIMEX COMPUTERS

A DIVISION OF PRIMEX MARKETING LTD.

Your One-Stop Shop for Customized PC

Specialized in Repairs & Upgrades • On-Site Troubleshooting & Services • Networking Consultation

Christmas Systems Special

486DX4-120 System

\$1359

Lease Available

- 486DX4-120 CPU
- 256K Cache, ZIF, On-board EIDE
- 8MB 70ns 72pin RAM
- 730MB EIDE Hard Drive
- 1.44 Floppy Drive
- 14" N.I. L.R. .28mm dp SVGA Monitor
- 1MB Trident 9440 PCI Video Card
- 101 Enhanced Keyboard
- 13" CSA approved Mini-Tower Case
- 2-Button Mouse and Mouse Pad

Pentium Power (P-90)

\$1665

Lease Available

- Intel Pentium 90 MHz CPU
- Triton Chipset, 256K Cache
- ZIF, Zocket 7, On-Board EIDE
- 2 high-speed SIO (16550) and PIO
- 8MB RAM 72 Pin 70ns
- 730MB EIDE Hard Drive
- 14.4 Floppy Drive
- 14" N.I. L.R. .28mm dp SVGA Monitor
- 13" CSA Approved Mini-Tower case
- Trident PCI 9440 Video Card 1MB
- 101 Enhanced Keyboard
- 2-Button Mouse and Mouse Pad

P-75 \$1545 P-120 \$1815
P-100 \$1715 P-133 \$2055

Acer A-Open System (P-120)

\$1889

Lease Available

- Intel Pentium 120 MHz CPU
- Triton Chipset, 256K Cache
- ZIF, On-Board EIDE
- 2SIO (UART 16C550) & PIO
- 8MB RAM 72Pin 70ns
- 730MB EIDE Hard Drive
- 14.4 Floppy Drive
- 14" N.I. L.R. .28mm dp SVGA Monitor
- 13" CSA Approved Mini-Tower Case
- S3 Trio 32D Video Card 1MB
- 101 Enhanced Keyboard
- 2-Button Mouse and Mouse Pad

P-75 \$1619 P-100 \$1789
P-90 \$1739 P-133 \$2129

Touch Multimedia Pentium

- Intel Pentium 75 CPU W/256K Cache
- 8MB RAM, 1MB PCI Video Card
- 1.0GB Hard Drive
- 1.44 MB Floppy Drive
- S. Mouse & 104 Keyboard
- MS Windows 95 Preloaded
- Super Mini Tower Case
- 4X CD-ROM Drive
- 16 Bit Sound Blaster Compitable Sound Card
- Koss HD5 Non-Amplified Speakers
- 28.8K bps Internal Data/Fax Modem
- Softkey Entertainment 6-CD Pack featuring
- Fighter Wing, Body Works, Golf and more...

\$1949

Lease Available

Acer A-Open Multimedia Pentium

- Intel Pentium 75 CPU W/256K Cache
- 8MB RAM, 1MB PCI Video Card
- 1.0GB Hard Drive
- 1.44 MB Floppy Drive
- S. Mouse & 101 Keyboard
- MS Windows 95 Preloaded
- Super Mini Tower Case
- 4X CD-ROM Drive
- 16 Bit Sound Blaster Compitable Sound Card
- Koss HD5 Non-Amplified Speakers
- 28.8K bps Internal Data/Fax Modem
- Softkey Entertainment 6-CD Pack featuring
- Fighter Wing, Body Works, Golf and more...

\$1949

Lease Available

Add just \$70 for either Novell Perfect Office or Lotus Smart Suite

Add just \$363 for Epson Stylus IIs Ink Jet Printer

Add just \$549 for Epson Stylus II Ink Jet Printer

3 Years Labour & 2 Years Parts Warranty For All Systems

Christmas Special Limited Quantity

Western Digital 1.6GB EIDE Hard Drives

NEC 1.6GB EIDE Hard Drives

Only \$475

Only \$429

Store Hours:
Tue.-Sat.:
10:00am - 6:30pm
Sun:
11:00am - 6:00pm
Mon. Closed

Free Parking
at Rear

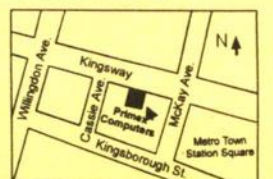
4546 Kingsway, Burnaby, B.C. V5H 2B1

Tel: (604) 438-8900

Fax: (604) 438-8266

E-mail: png@direct.ca

All prices are cash prices. Prices subject to change without notice



Canada's Mail Order Ware Canada

CD-ROM Specialists

CALL OR SEND FOR FREE CATALOGUE

COMPTON'S '95 \$19.95

ENCARTA '95 \$45.00

GROGLER'S '96 \$35.00

THE NEW GROGLER \$45.00

Microsoft Bookshelf '95 \$25.00

MOVIES & VIDEOS Blockbuster Movie Guide \$25.00

AL UNSER, JR. Arcade Racing For Windows '95 \$25.00

11th HOUR \$68.00

7TH GUEST (PC) \$19.00

7TH GUEST (MAC) \$21.00

ACES OF THE DEEP \$21.00

INDY CAR RACING \$21.00

MONTY PYTHON'S REBEL ASSAULT \$21.00

SPACE QUEST 2000 \$21.00

SIMCITY 2000 \$21.00

SPACE QUEST VIRTUAL POOL \$21.00

19 Audubon's Birds of North America \$21.00

25 Arthur's Teacher Trouble \$21.00

25 Card Shop Plus! \$21.00

19 Just Grandma & Me \$21.00

35 Mayo Family Health Book \$25.00

30 PC Globe Map N' Facts \$25.00

30 Rand McNally Trip Maker \$25.00

49 Simtel 2-CD DOS Shareware \$25.00

49 World Atlas 5.0 \$25.00

KING'S QUEST 7 \$29.00

BODYWORKS \$23.00

BODYWORKS 4.0

FREE SHIPPING WITH 3+ TITLES

2-DAY \$8 EXPRESS SHIPPING

SHOP ON THE INTERNET:

<http://www.romware.com/romware>

TO ORDER CALL 1-800-944-3369

ISS

ORDERS SHIPPED C.O.D.

Add 7% GST (and 8% PST in Ontario)

Prices Subject to Change Without Notice

Add \$5.50 Shipping For 1-2 Titles

Free Shipping Applies to Standard Service

To order: Phone, Fax, E-mail or send it with correct payment to:

RomWare Canada

P.O. Box 61530, 9350 Yonge Street

Richmond Hill, Ontario, L4C 0C9

Tel: (905) 889-9914

Fax: (905) 889-8454

Email: cdsales@romware.com

CHRISTMAS SAVINGS AT P.C.PLACE



14400 VOICE FAX MODEMS \$99
28800 FAX MODEMS \$199

QUAD SPEED CD ROM KITS
WITH SOUND CARD & CD'S
ONLY \$399

1.2 GIG HARD DRIVE \$399
850MB HARD DRIVE \$299

72 PIN SIMMS
4MB \$199
8MB \$385
16MB \$719

NEW SYSTEMS BUILT TO ORDER
486DX4 120 MHz MULTIMEDIA
WITH SVGA COLOR MONITOR \$1699

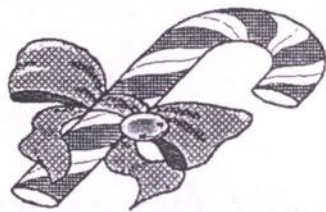
PENTIUM P5 90MHz LOADED
CALL FOR PRICES

GREAT DEALS ON USED SYSTEMS

286'S FROM \$99
386'S FROM \$399
INCLUDES
MONITOR &
KEYBOARD

USED PRINTERS
FROM \$75

P.C.PLACE
SURREY. PH:5728324
ABB. PH:8558839



of 200W, 230W, and 250W. Prices increase with height and wattage. Some of the computer shops told me that 200W is all one needs. I have read that the power supply becomes an issue only if the user anticipates adding both extra hard drives and other peripherals that will markedly increase the demand for power. A 200W power supply is probably adequate for most users, but someone who expects to have a lot of hardware at his or her beck and call should inquire of his or her retailer whether the power supply needs to be bigger.

Then, on my list of specifications, I made note of my need for at least a couple of years of warranty covering parts and labour, and of my need for prompt and reliable service. I might better have placed this specification at the top of my list.

Lower on my list of specifications, I made reference to features that apparently are standard on the Pentium. A 3.5", 1.44MB floppy drive is standard. The user may want to add a 5.25" floppy drive. Also standard are the EIDE PCI controller and two 16550 UART serial ports and one parallel port. To accommodate the addition of hardware, the Pentiums I have seen provide either three or four 32-bit PCI expansion-card slots.

My Pentium comes equipped with a replaceable battery with an expected life of ten years. I ordered a standard mouse with my computer, but I would strongly recommend that a prospective buyer visit one of the larger computer and electronics stores to look at the different kinds of mouse and at the other interactive devices vying for the user's dollar. Maybe the day of the standard, two-button mouse has gone!

Thus, I come to the prime specification on my list: the size of the computer in megahertz. The Pentium has, for a few months, been available in these sizes: 60 MHz, 66MHz, 75MHz, 90MHz, 100MHz, 110MHz, 120MHz, 133MHz. By the time that this issue of *Computer Player* appears, 150MHz, 166MHz, and 180 MHz sizes should be available. Overdrive chips are also reported to be in the works that will allow the buyer of the smaller sized Pentiums to boost their power. The user of a 75MHz Pentium may, for instance, be able to turn his or her machine into a 150MHz Pentium. So which Pentium did I buy? I bought the Pentium that suited my budget and my needs (both actual and anticipated). I bought the Pentium that the users of the Internet and the publishers of the computer magazines recommended. Where did I buy it?

RPC

(Sales, Repair & Upgrade)

Ask us about leasing. Prices subject to change without notice. MasterCard, VISA service charge 2%.



SYSTEMS

486DX2-66 \$1250
486DX4-100 \$1300
486DX4-120 \$1330

P-75PCI \$1730
P-90PCI \$1880
P-100PCI \$1920
P-120PCI \$2050
P-133PCI \$2300

LEASE TO OWN
A COMPUTER
PLEASE PHONE

- * 486 PCI Motherboard
- * 4MB RAM, 256KB Cache
- * Enhanced PCI EIDE HD/FD Cntrlr
- * 630 MB EIDE Hard Drive
- * 1.44MB FD Drive
- * 2S, 1P, 1G Ports
- * PCI Trident-9440 video card w/ 1Mb
- * 14" SVGA .28 Non-Inter. Monitor
- * 101 key Enhanced Keyboard
- * 13" Mini Tower Case
- * 2 Year Parts & Labour Warranty
- * Intel Pentium® Processor
- * 8MB RAM, 256KB Cache
- * 1.44 Mb Floppy Drive
- * 850MB EIDE Hard Drive
- * PCI Enhanced HD/FD Controller
- * 2 serial, 1 Parallel, 1 Game port
- * PCI Video Card w/ 1Mb
- * 14" SVGA Non-Interlaced Monitor
- * 101 Key Enhanced Keyboard
- * 19" Mid Tower Case
- * 2 Year Part & Labour Warranty

MULTIMEDIA

16 bit sound card w/ 4x CD-ROM Kit \$260
Digital SchoolHouse 4X Kit \$430
Multimedia Home 4X kit \$540
Sound blaster 32 \$225
Sound Card w/ 2 speakers \$70
16 bit Sound Card w/ 2 speakers \$88
2x speed CD-Rom \$85
Panasonic/Sony 4x SCSI CD-Rom \$295
Toshiba/Plexor 4x SCSI CD-Rom \$395
Toshiba/Panasonic 4x Speed IDE CD-Rom \$210/\$195
Sanyo 2x Speed SCSI \$175
Adaptec SCSI CD-Rom Cntrlr w/ Software \$85

We are a member of
Better Business Bureau

MOTHERBOARDS (Latest Design)

486SX-33MHz \$170
B486DX2-66 256K w/ CPU, fan \$230
i486DX2-66 256K w/ CPU, fan \$315
A486DX4-100 256k w/ CPU, fan \$300
i486DX4-100 256k w/ CPU, fan \$335
P-75 256k w/ cpu, fan \$500
P-90 / 100 256k w/cpu, fan \$620/\$660
P-120 / 133 256k w/cpu, fan \$780/\$1040

Printers

Fujitsu DL-700 24pin \$210
Raven 2407 24-Pin color upgradable \$280
Raven LP-410 1MB LED \$580
Raven LP-470PS Laser \$995
Brother-660 2MB 600dpi \$780
Okidata OL-400e LED \$599
Okidata OL-410e LED 600 dpi \$799
HP 340 Deskjet 600x300 dpi \$455
HP 600 Deskjet 600x300 dpi \$430
HP 660C Color Deskjet 600dpi \$580
HP LaserJet 5L 600dpi \$699
HP LaserJet 5P 600dpi \$1260
HP LaserJet 5MP 600dpi \$1450
HP LaserJet 4+/4M+ 600dpi \$2050/\$2720
HP LaserJet 4V/4MV \$2800/\$3990
Canon 10sx, 100 \$299

NETWORKING

MS-Windows for Workgroups 3.11 \$85
Lanlastic 6.0 starter kit \$295
Novell 3.12 upgrade (10 user) \$1650
Novell 3.12/4.1 (5 user) \$830/880
Novell 3.12/4.1 (10 user) \$1499/1520
Novell 3.12/4.1 (25 user) \$2620/2680
Eagle 2000+ 16 Ethernet Card \$105
GVC Ethernet Card \$58
cable, connector, terminator & crimping tool

MATH CHIPS

387SX 16 - 33MHz \$55
387SX 40MHz \$80
387DX 20 - 33MHz \$60
387DX 40MHz \$75

Specials

Logitech Mouse \$35
Panasonic 4x IDE CD-ROM \$195
Sony 4x SCSI CD-Rom \$295
Conner 800M TapeBackup \$280
Sanyo 2x SCSI CD-ROM \$175

We repair :
-Monitors
-Systems
-Printers



We upgrade laser printers

RPC

Computers Ltd.
1796 Renfrew St.
Vancouver, B.C.

(604) 255-1192

Fax: (604) 255-0002

Mon.-Fri. 9:30-6:00 * Sat. 11:00-5:00

MONITORS & VIDEO CARDS

Daytek/ASI 14" NI SVGA .28 \$310
Daytek/ASI 14" NI LR SVGA .28 \$320
Daytek/Compartner15" NI LR Flat SVGA .28 \$450
Daytek 17" LR Flat Screen NI SVGA \$870
ADI 4Gp LR 15" Flat Screen NI SVGA \$540
ADI 5Ep LR 17" \$920
SONY 15st 15" \$670
NEC XV 15" \$670
NEC XV17 / Xe17 17" \$1150/\$1460
SVGA Card 256K Exp. 512K \$50
SVGA Card 1MB \$95
Trident/S3 SVGA Card VLB/PCI 1MB \$105/\$105
Matrox Millennium 2mb VRam PCI \$460
Diamond Stealth 64 DRAM 1/2MB VLB/PCI \$245/\$315
Diamond Stealth64 Video VRAM 2/4MB \$490/665
ATI Mach32 1MB DRAM ISA / VLB/PCI \$169
ATI Mach64 1MB/2MB DRAM ISA/VLB/PCI \$205/\$265
ATI Mach32 2MB VRam ISA/VLB/PCI \$350
ATI Mach-64 2MB/4MB VRam ISA/VLB/PCI \$365/595

DRIVES & CONTROLLERS

540MB EIDE / 730MB SCSI \$230/\$295
850MB EIDE \$280
1.08GB/ 1.2GB EIDE \$340/\$368
1.08GB SCSI \$460
1.4GB/ 2.1GB SCSI \$1050/\$1200
2.1GB Wide SCSI \$1350
2.5" 340MB IDE for notebook \$390
2.5" 540MB IDE for notebook \$580
1.2MB 5.25" Floppy Drive \$65
1.44MB 3.5" Floppy Drive \$43
Fujitsu 230MB optical drive w/ 1 disk \$620
Conner 420/800MB tapebackup \$179/280
Colorado 250/350 parallel port backup \$385/410
Conner 4.0G Int./ext.tape backup \$1295/\$1465
VLB EIDE Controller w/ Multi-I/O \$45
VLB EIDE Cntrlr w/ Enhanced I/O \$50
Adaptec 1522/1515 SCSI Cntrlr \$125/\$168
Adaptec 2842A VLB SCSI Controller kit \$350
Adaptec 2940/2940W PCI SCSI Cntrlr \$295/350
Future Domain PCI SCSI Controller \$170

V-COM Offers Custom Configuration Guide

If the choice between an off the shelf computer package and a system configured for your exact needs has you a little confused, then a visit to V-Com Computers is a definite must.

You've read all the books, studied all the magazines, talked to the neighborhood guru, and even asked the annoying guy at the office, and you know that a custom configured PC will be the best choice yet what do you do now.....

In the Custom Configuration business for over 13 years

Fear not, V-Com Computers, on the corner of Marine Drive and Kerr in Vancouver has been in the custom configuration business for over 13 years. From the color of your case to the speed of your internal Cache, you'll be taken on an informative guide to your ultimate choice.

Custom configuration opens the gateway to real performance value. Let's be honest, all that bundled software in the package is not free.... it may be discountedbut it does cost you, and if you don't really need it, spending that money on a faster modem or faster video card will be of greater value to you when you start surfing the Internet, or working on Windows 95.

The Ideal Consultant Based Approach

V-Com's retail layout is ideal for the consultant based approach required to put together the perfect PC for each customer. A large spacious showroom area, a sound and site room to compare speakers and monitors, sit down - hands on display models of the PCs and comfortable consultant stations. Custom configuration doesn't cost more money yet does take more time. V-Com consultants are ready and willing to go through each item option, in easy to understand, real life language. (no techno-babble)

Education and information

To purchasers with a limited knowledge of computers, you'll leave V-Com educated, informed, and confident in your quest for the perfect PC. To purchasers that are technically literate you will appreciate the level of knowledge and product awareness that V-Com consultants bring to the table.

Let's face it, we also need to know about the stability of the company that is going to provide the PC. Even though the manufacturer's warranties are always there, we need to consider the overall service issue. V-Com has been in business for over 13 years, is a subsidiary of a large international high tech company with offices in Vancouver, Prince George, Calgary, Toronto, Halifax, and 2 locations in the United States, and has a buying office in the Far East.

This type of support is key to not only longevity, but to good pricing, good products and good product variety.

This is indeed not your average corner computer store. This type of support is key to not only longevity, but to good pricing, good products and good product variety.

From the right store, the custom configured PC is serviced faster,

upgraded easier and cheaper, and many problems can be fixed right over the phone. No one knows the product better than those that built it in the first place.

Overall, V-Com offers a solid guide to configuring the system best suited for the customer. V-Com has all the benefits of the small independent, knowledge based computer store and all the support and stability of the big chains. A nice combination. V-Com is definitely The place to go when venturing out into the wild wild world of computer shopping.

V-Com Computer Warehouse is located at the corner of Kerr and Marine Drive in Vancouver.

V-Com Computer Warehouse
3104 Marine Drive,
Vancouver B.C.
V5S 2H4
Phone: 604-437-8818
Fax: 604-437-1881

V-COM PRODUCT OF THE MONTH

Nikana CX-100MHz 15"

Multi Media

GA 586100Mhz AM MB
16K Internal Cache
256K External Cache
8MB 72 Pin RAM
ATI Mach 64 w 1MB
3.5" Floppy Drive
19" Mid Tower Case
NEC 730MB HDD
Nikana 101 Enhanced KB
16Bit Sound Card
4X CD-ROM Drive
Speakers MLI 691
Microsoft Windows 95 C-D
Microsoft Mouse



Key Features

15" SVGA NI Monitor
Internet Ready High
Speed 28.8 V34 Fax
Modem
2 Year P & L Warranty

\$2,399.
complete!

Nikana

The perfect fit.

The Nikana CX-100MHz from V-Com offers the complete 586 multi-media performance package.

The Cyrix 5x86 processor is the perfect fit for your desktop and mobile PC systems. It gives you the fifth-generation performance you want — and much more.

High performance meets smart design. The Cyrix 5x86 processor is packed with fifth-generation features that analyze and process information rapidly. Pipeline stalls and bottlenecks are virtually eliminated with branch prediction and data forwarding. With features such as a 64-bit internal data path, a 16K write-back cache and an 80-bit floating point unit, the Cyrix 5x86 optimizes speed and performance to take you further, faster.



The Cyrix 5x86 PGA processor for desktop PC systems.



The perfect fit means proven compatibility. The Cyrix 5x86 is fully compatible with the software you have — and the software you want. Enjoy the powerful features of Windows 95, Windows, OS/2, DOS, Windows NT and more. Speed

through the latest multimedia and business applications. With the Cyrix 5x86 processor, you'll get the compatibility you need to run today's software faster. It's the perfect fit.



We also accept personal and company checks and corporate purchase orders (OAC). Government sales welcome. Business equipment leasing available.

V-COM

V-Com Computer Warehouse
3104 Marine Drive,
Vancouver B.C.
V5S 2H4
Phn: 604-437-8818
Fax: 604-437-1881

V-Com Computers
1220 2nd Avenue
Prince George, B.C.
V2L 3B3
Phn: 604-562-9696
Fax: 604-562-6161

Let me return to my story. Having described to my satisfaction the computer that I wanted, I asked myself where I might buy it. The options seemed to be five. I could buy a computer at a computer-shop, at a computer and electronics store with a service department, at a computer and electronics store without a service department, from a mail-order house, or at a super grocery store. I thought that my best bet was probably to contact those computer-shops which advertised in papers such as *Computer Player*. By using such papers, I made a list of six shops that I thought might be able to customize a system for me. I sent the shops my list of specifications and a stamped, self-addressed envelope. I asked them to send me their price with comments about my specifications. Two shops responded. (I may have written to them at a busy time, just when university and school were entering the fall

term.) One of the two shops called to inquire whether I had any questions about its response. I was impressed, but I knew that I did not have enough quotations to judge the going price for the system that I wanted. I then visited some of the shops in person and, by that means, I obtained three more quotations. Some of the shops were not willing to meet my specifications; some were too busy talk to me at the time of my visit. As a result of my visits, and as a result of some calls I made to other shops, I learned that the monitor I wanted was not easily had. One shop said that I might have to wait several weeks for that monitor. One shop said that I might have to wait for several months. Another shop said that the monitor was just not available. They all said that if I would take a less desirable monitor, they could provide me with a system in 3 to 5 days. In pursuit of that monitor, I contacted a

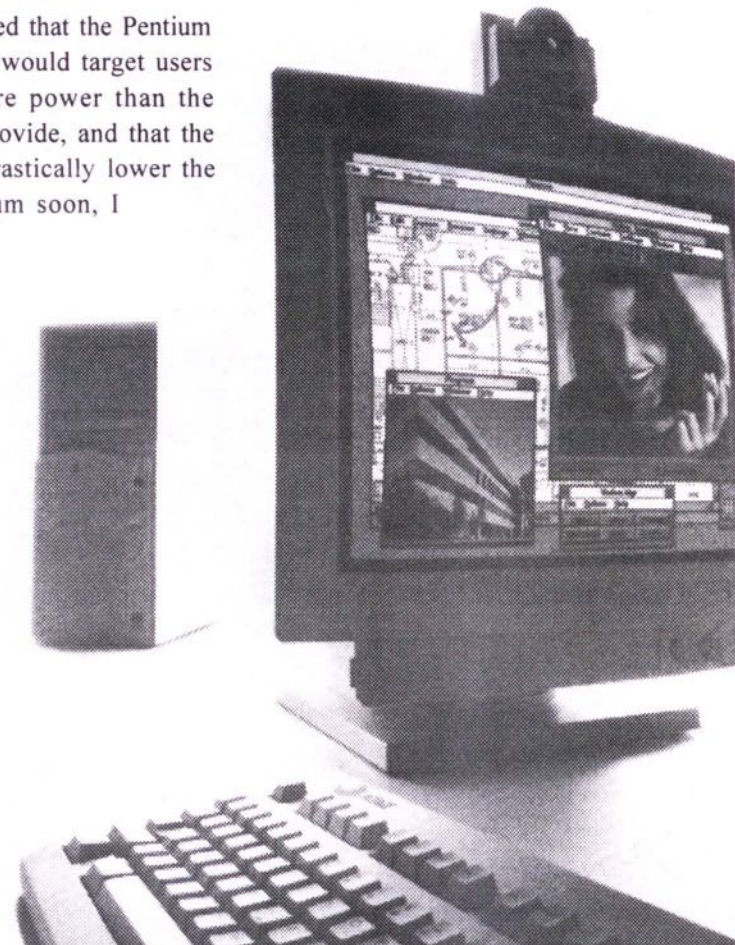
mail-order house. The mail-order house said that I could have a system with all my specifications within two and half to three weeks at hundreds of dollars less than I could buy a system in the lower mainland. The catch, I realized, was service. The local computer shops need to charge a premium to cover their costs of providing support for two years or so. The reason that the stores without service departments can sell systems for less than the computer-shop is that they make no provision to provide support, but support is critical for the novice user, the technically inept, and the crazy-busy! I noted that I did not fit into any of those categories, but I was reluctant to buy outside of the lower mainland because I know how readily things will go wrong with computers.

When I learned that the Pentium Pro (aka the P6) would target users who needed more power than the Pentium could provide, and that the Pro would not drastically lower the price of a Pentium soon, I made my decision. I ordered my computer. I wrote this piece with it. Right out of the box, it performed beautifully. Then I noticed that the manufacturer had enclosed some software with utilities affecting my video card. The manufacturer had also enclosed a

manual for the installation of those utilities. I installed those utilities. I should not have done that! Now, when I boot in Windows 95, the system shuts off my monitor. When I called the manufacturer, it said that the software was incompatible with Windows 95. Now it tells me! Now I will not touch anything that does not have the Windows 95 logo.

That is my story. Make of it what you will, but do yourself a favour and pay heed to the five S's: service, speed, screen, software, and service. □

About the author: *John A. Hosh* is a computer enthusiast and writer. His e-mail address is: jhosh1@freenet.vancouver.bc.ca.



Diskette Supply Diskette Duplication Services

3.5" 2HD Floppy Disks

HIGH RELIABILITY & MOST COMPETITIVE PRICES

- 100% Certified & Tested
- Full Lifetime Warranty
- 1.44MB Formatted, High quality Boxed 10/25/50
- Duplication grade, unformatted diskettes High Clip, Boxed 50
- Full diskette duplication services



SUNNET IMAGE LTD.

6851 Antrim Avenue
Burnaby, B.C. V5J 4M5

To Order:
Tel: (604) 437-3388
Fax: (604) 437-3308



C.C. TECH COMPUTERS

504 EAST BROADWAY VANCOUVER, B.C. V6T 1X4 TEL: 604-8767983 FAX: 604-8767984
ALL SYSTEM WITH TWO YEARS PARTS & LABOUR WARRANTY BUSINESS HOURS: 10AM TO 6PM MON-SAT

4SPEED CD ROM -- \$190
CANON BJ100/BJC400 -- 299/419
ATI MACH64D 1M/2M -- \$170/230
ATI MACH64V 2M/4M -- \$340/560
DIAMOND STEALTH 1MBD--\$180
DIAMOND STEALTH 2MBD--\$240
635/850MB/1.2G HDD--\$240/280/380
14" MEGA/SCEPTRE -- \$295/310
15" MEGAIMAGE FLAT -- \$395
15" SCEPTRE N/L/R -- \$460
15" COMPUPANNER -- \$440
15" MAG DX15F -- \$490
15" SONY SF -- \$680
17" ADI MICROSCAN 5EP -- \$910
17" MAG DX17F(0.26) -- \$910
17" SCEPTRE(0.26) -- \$910

486 PCI SYSTEM

GIGABYTE MOTHER BOARD
AMD CPU
256 KB CACHE
4 MB RAM
635 MB EIDE HDD
1.44 MB FDD
1MB PCI SVGA CARD
14"SCEPTRE MONITOR
2*16550S, 1*PARALLEL
MOUSE & PAD
ENHANCED KEYBOARD
TOWER CASE

80MHZ -- \$1150
100MHZ -- \$1190

PENTIUM TRITON

GIGABYTE MOTHER BOARD
256 KBCACHE,PNP
8 MB RAM
635 MB EIDE HDD
2*16550S, 1* PARALLEL PORTS
DIAMOND STEALTH 64 1MBD
14" SCEPTRE MONITOR
1.44 MB FLOPPY DRIVE
101 ENHANCED KEYBOARD
TOWER CASE (230 WATTS)
MICROSOFT OR LOGITECH MOUSE

75/90MHZ--\$1650/1750
100/120MHZ--\$1850/1990

PENTIUM TRITON

GIGABYTE MOTHER BOARD
256 KBCACHE,PNP
16 MB RAM
850 MB EIDE HDD
2*16550S, 1* PARALLEL PORTS
ATI MACH 64D 2 MB DRAM
15" SCEPTRE MONITOR
1.44 MB FLOPPY DRIVE
101 ENHANCED KEYBOARD
TOWER CASE (230 WATTS)
MICROSOFT OR LOGITECH MOUSE

75/90MHZ--\$2250/2350
100/120MHZ--\$2450/2590

Christmas Special

PENTIUM TRITON

GIGABYTE MOTHER BOARD
256KB PIPELINED CACHE
8 MB RAM EDO
850 MB EIDE HDD
2*16550S, 1* PARALLEL PORTS
ATI MACH64D 2MB DRAM
15" MAG DX15F MONITOR
1.44 MB FLOPPY DRIVE
101 ENHANCED KEYBOARD
TOWER CASE (230 WATTS)
MICROSOFT OR LOGITECH MOUSE
4SPEED CD ROM
SOUND BLASTER 16 CARD
SPEAKERS WITH DC ADAPTER

75/90MHZ--\$2350/2450
100/120MHZ--\$2550/2690

PENTIUM TRITON

ASUS MOTHER BOARD
256 KB PIPELINED CACHE
16 MB EDO RAM
1.2 GB EIDE HDD
2*16550S, 1* PARALLEL PORTS
DIAMOND STEALTH PCI 2MB
15" MAG DX15F MONITOR
1.44 MB FLOPPY DRIVE
101 ENHANCED KEYBOARD
TOWER CASE (230 WATTS)
MICROSOFT OR LOGITECH MOUSE
4SPEED CD ROM
SOUND BLASTER 16 CARD
SPEAKERS WITH DC ADAPTER

75/90MHZ--\$2850/2950
100/120MHZ--\$3050/3190

CALL FOR MEMORY SPECIAL 1MB/4MB/8MB/16MB32MB

free 14.4 INT VIOCE FAX/MODEM WITH PURCHASE SYSTEM "A"&"B"

Desktop Publishing Tips:

Corel PHOTO-PAINT 5.0

Swee-Sim Tan

PHOTO-PAINT'S retouching tools enable you to alter parts of the image. Some of the tools are also available as filters.

Start Corel PHOTO-PAINT and load an image. You select the retouching tools from the Toolbox. It's a good idea to save the image before experimenting with the tools. You can **Undo** each stroke as soon as you complete it and before you make another stroke.

Tinting

Tinting paints a glaze of colour over the image. Use it to add detail or tone down parts of the image.

Click the Tint Tool in the Toolbox. In the Tool Settings roll-up, choose the tool **Size** and the density of the **Tint**. In the Color roll-up, select a tint colour. Paint over the image with the Tint Tool.

To tint a grayscale image, click **Image**, **Convert To**, and select a colour format. Paint with the Tint Tool using colours selected from the Color roll-up.

Blending

Blending smooths edges by making colours "run." It creates shades of the adjacent colours.

Click the Blend Tool in the Toolbox. In the Tool Settings roll-up, choose the tool **Size**. Choose a **Blend** value. The higher the number, the more the colours will run. You can also drag the slider control across the scale.

Drag the Blend Tool over the image. Each pass of the tool will increase the amount of blending. Zoom in to see the effect.

Sharpening

Sharpening increases the contrast between colours by darkening the edges of dark colours, and lightening light colours. It creates outlines, producing an opposite effect to blending.

Click the Sharpen Tool in the Toolbox. In the Tool Settings roll-up, choose a small tool **Size** and set the **Sharpen** value. The higher the number the greater the contrast. You can also drag the slider control across the scale.

Drag the Sharpen Tool over the edges of colour areas in the image to create outlines.

Smearing

Smearing spreads a colour into adjacent colours.

Click the Smear Tool in the Toolbox. In the Tool Settings roll-up, choose the tool **Size**. Click the **Edge** drop-down list. Choose **Soft** for a feathered edge. Enter a number for **Density**. The higher the **Density**, the more the smeared colour will spread. Enter a **Transparency** value. The lower the **Transparency** value the more the smeared colour will cover other colours.

Drag the Smear Tool in the image. Start in one colour and stroke outwards from it.

Smudging

Smudging mixes colours by scattering pixels randomly.


**FUSION
ELECTRONICS**

Phone ... 604 688 9819

Fax 604 688 9819

SPECIAL

586/100 \$1430

486DX4/100	\$1160	Pentium 75	\$1830
Pentium 120	\$2350	Pentium 90	\$1920
Pentium 133	\$2530	Pentium 100	\$2010

THREE YEARS LIMITED WARRANTY**THIRTY DAYS PHONE TECHNICAL SUPPORT
FREE DELIVERY****\$300 IN SERVICES INCLUDED FREE WITH SYSTEM****486 CONFIGURATION**

• MiniTower Case • Motherboard w/ZIF Socket, AMI Windows Bios, Green, Support up to 4 Drives • 256 Cache, 4MB RAM • SVGA VLB 1MB (up to 2MB) • 14" SVGA .28 Monitor • IDE VLB CTRL, 2S/1P/1G • 730MB HDD • 1.44 MB FDD, Supports up to 4 HDD • Enhanced Keyboard • Mouse

586 CONFIGURATION

• MiniTower Case • Motherboard VIP, ZIF @ Green Bios • 256 Cache, 8MB RAM • SVGA PCI 1MB • 15" SVGA .28 L.R. Monitor • IDE PCI 2S/1P/1G • 730 MB HDD • 1.44 MB FDD • Enhanced Keyboard • Mouse

UPGRADES

To 8MB	+\$175	28.8 kbs V.32 Fax modem ..	+\$195	CDROM Toshiba 4X	+\$220
To 850 MB Hard Drive	+\$ 50	28.8 kbs Voice Fax modem ..	+\$290	Panasonic 4X	+\$235
To EIDE 2X 16550	+\$ 20	14.4 Voice Faxmodem	+\$ 85	PCI Stealth 64-866 D2MB ..	+\$130
To Sound Blaster 16 VIBRA ..	+\$ 90	USR 14.4 Fax modem	+\$125	PCI Stealth 64 - 968 V2MB ..	+\$290

ASK ABOUT OUR PRE-OWNED COMPUTERS & COMPONENTS**GREAT SAVINGS**

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

Click the Smudge Tool in the Toolbox. In the Tool Settings roll-up, choose the tool **Size**. A **Soft Edge**, high **Density**, low **Transparency** and high **Rate of Flow** will increase the scattering.

Drag the Smudge Tool over the image. □

About the author: *Swee-Sim Tan* is a freelance graphic artist and desktop

publisher who provides training and consultation in CorelDRAW, Corel PHOTO-PAINT, Corel VENTURA, Harvard Graphics, PageMaker, and WordPerfect. If you are using CorelDRAW, Corel PHOTO-PAINT, CorelTRACE, or Corel VENTURA, call for information about purchasing How-To booklets and a collection of desktop publishing tips. Telephone: 254-5940.

DATAWORLD COMPUTERS LTD.

5660 VICTORIA DR. VANCOUVER, B.C. V5P 3W4

Tel : 323-0768

Fax : 323-0788

Business Hours:

Mon-Fri : 10:30-6:00

Sat : 10:30-5:00

Sun : Closed

System Upgrade To 486DX4-100

\$249Free
Installation

Price includes : MotherBoard, CPU, Cooling Fan & Heat Sink

Upgrades

Repairs

Networking

486DX Vesa System

486 Vesa MotherBoard (3Vesa, 4ISA)
4MB Ram(72Pin)
VLB SVGA CARD w/1 MB
VLB IDE Controller w/1P, 1G, 2S
1.44 MB Floppy Drive
540 MB Hard Drive
14" N.I. .28dpi SVGA Monitor
13" Tower Case
101 Enhanced Keyboard
Free Mouse w/Mouse Pad

DX4-100
\$1099
486DX PCI System

PCI MotherBoard 4ISA, 3PCI
4MB Ram(72Pin)
S3 PCI SVGA w/1MB
OnBoard EIDE Controller
I/O w/1P, 2S
1.44 MB Floppy Drive
540 MB Hard Drive
14" N.I. .28dpi SVGA Monitor
13" Tower Case
101 Enhanced Keyboard
Free Mouse w/Mouse Pad

DX4-100
\$1139
Pentium System

PENTIUM MotherBoard w/256K Cache
(Triton Chipset)
8MB Ram(72Pin)
S3 PCI SVGA Card w/1MB
OnBoard EIDE Controller, Fast I/O w/1P, 2S
1.44 MB Floppy Drive
850 MB Hard Drive
14" N.I. .28dpi SVGA Monitor
15" Tower Case
101 Enhanced Keyboard
Free mouse w/Mouse Pad

Pentium P-75	\$1599
Pentium P-90	\$1699
Pentium P-100	\$1780
Pentium P-120	\$1880
Pentium P-133	\$2080

Video Cards & Monitors

Trident 8900CL, 1MB	\$85
Cirrus Logic 5429 VLB, 1MB	\$95
ATI Mach32 1MB	\$149
ATI Mach64 2MB DRam	\$259
Diamond Speedstat pro, 1MB	\$155
Diamond STL64, 2MB	\$279
Diamond Viper, 2MB VRam	\$479
Proview 14" NI LR 72 MHz	\$295
Acer 15"/17" NI, LR .28DPI	\$450/795
NEC XV15/XV17	\$669/1079
MAG DX15F/DX17F	\$520/920

MultiMedia

Panasonic 2x CD-Rom Drive	\$80
Panasonic 574 4X CD-Rom	\$225
Discovery CD 4X	\$439
MultiMedia Package:	\$275
Panasonic 2x CD Rom +Soundblaster 16	
CD Titles: 95' Encarta, MsWorks, MsMoney	
MsDangerousCreatures, MsGolf,	
GamesPack & Speakers	

Modems

GVC 14.4 int. Fax/Modem \$ 65
U.S. Robotic 14.4 int./ext. \$125/155
U.S. Robotic 28.8 int./ext. \$249/289

Printers

Canon BJ-100e	\$279
Canon BJC-4000	\$449
Brother HL-641/HL-660	\$525/730
HP DeskJet 540	\$379
HP DeskJet 560C	\$690
HP 4L w/1MB (300DPI)	\$885
HP 5P w/2MB (600DPI)	\$1270
Raven 2405	\$229
Raven 2407	\$335

Hard Drives

540 MB IDE	\$220
635 MB IDE	\$249
850 MB IDE	\$285
1.2 MB IDE	\$385
1.6 GB IDE	\$550

NoteBook

Smartbook 486DX2-66 Mono	\$2200
SmartBook 486DX2-66 DSTN Color	\$2900
SmartBook 486DX2-66 Active Color	\$4100
Configuration : 4MB Ram, 170MB HD, 1MB Video, PCMCIA typeII/III slots, Built-in TrackBall	

2 Years parts and labour warranty on systems All prices are cash and carry Prices are subject to change without notice

Frequently Asked Question:

Pentium Pro (686)

Information from Intel Corp.

What is the Pentium Pro processor?

The Pentium Pro processor is the next generation processor family from Intel. The Pentium Pro processor includes significant architectural innovations and enhancements, like Dynamic Execution. The result is a significant boost in system performance—especially with 32-bit software. The first Pentium Pro processor is manufactured on the same silicon process as today's volume 100MHz Pentium processor.

dependent upon data availability. This means that the Pentium Pro processor performs well on any code designed to run on previous generation 32-bit Intel processors. The Pentium Pro processor will also execute 286-targeted code, but the performance gain will not be as high.

While all Intel Architecture-compatible software, particularly 32-bit software, benefits from Pentium Pro processor performance, there are steps software developers can take to get full advantage of the

Pentium Pro processor. These include using modern compilers which can improve performance for all current Intel processors, writing 32-bit code where possible, and making their code as predictable as possible to take advantage of the Pentium Pro processor's multiple branch prediction capabilities.

Is it compatible with previous Intel Architecture processors?

Yes. The Pentium Pro processor is fully compatible with all of your existing PC applications.

How does the Pentium Pro processor achieve its performance?

Through a variety of architectural techniques such as Dynamic Execution and hardware features, such as the inclusion of the 256K L2 cache in the package.

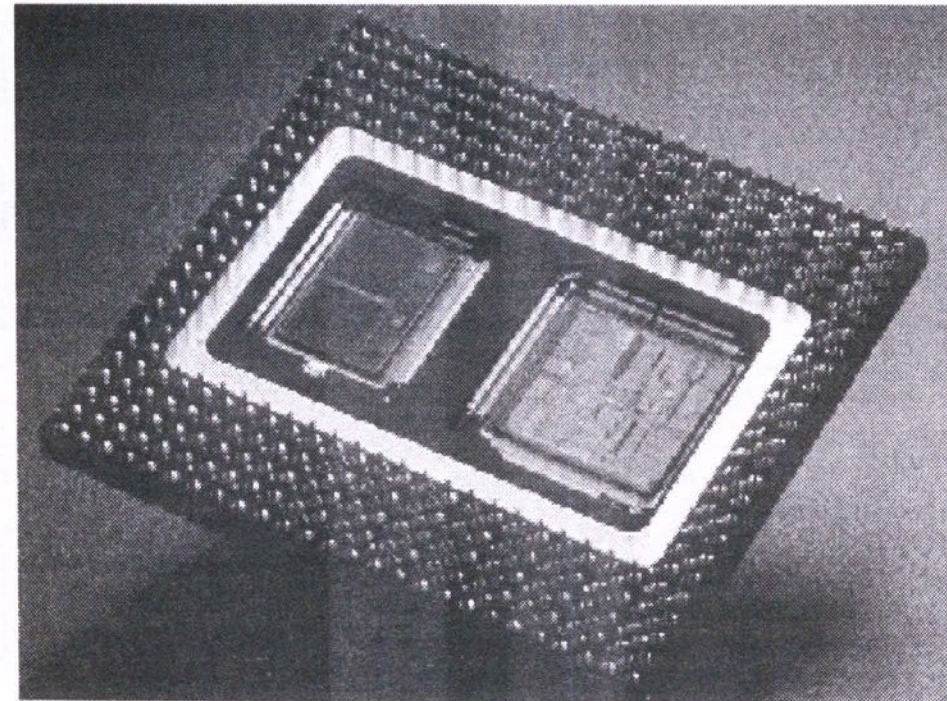
What is Dynamic Execution?

It's a phrase that Intel developed to describe the Pentium Pro processor's unique combination of Multiple Branch Prediction, Dataflow Analysis, and Speculative Execution.

To implement Multiple Branch Prediction, the Pentium Pro processor contains a Branch Target Buffer which is twice as wide and twice as deep as the one implemented on the Pentium processor. The Pentium Pro processor also employs a more sophisticated, history-based prediction algorithm. For Dataflow Analysis, the Pentium Pro processor analyzes which instructions are dependent on each other's results, or data, to create an optimized schedule of instructions. Instructions are executed speculatively based on this optimized schedule, keeping all the chip's superscalar processing power busy, and boosting overall software performance. The Pentium Pro processor core also includes a retirement processor which ensures that instructions are completed in the same order as a Pentium processor would have completed the instructions.

Is the Pentium Pro processor real?

The Pentium Pro processor is very real. Technology demonstrations have been shown with the Pentium Pro processor running a variety of operating systems and applications. Systems were shown at CeBIT (an industry tradeshow) and ISSCC (a technical conference). Currently, the demonstrated system frequency has been at 133MHz.



Does software need to be recompiled to gain a performance enhancement on the Pentium Pro processor?

No. The Pentium Pro processor is designed to deliver optimal performance with 32-bit software. But you can also run the same software that you're using today and gain a performance boost. The Pentium Pro processor schedules instructions at run time

What will Pentium Pro processor performance look like in the future?

The first Pentium Pro processor will be produced on a 0.6 micron manufacturing process. Intel are already preparing to move Pentium Pro processor production onto the newer 0.35 micron process—the same process that the new 120 and 133 Mhz Pentium processors are currently produced on. This will allow the Pentium Pro processor to operate at higher frequencies.

With this change and other methods, Intel engineers are looking at ways to boost the Pentium Pro processor's frequency to over 200 MHz in the future. The Pentium Pro processor also delivers higher performance through multi-processing.

PC Connections

6600 NO.3 Road, Richmond
Tel : 270-4883 Fax : 270-3812
Hours : Mon.-Sat. 10am to 6pm

Intel
Processor
Dealer

We sell genuine Intel
Pentium processor with
certificate of authenticity.

Intel Pentium® processor based system
Gigabyte GA-586ATboard w/Intel Triton chipset
256K Cache, PNP BIOS, onboard EIDE and fast I/O
8MB RAM, Max. 128MB RAM
PCI SVGA card w/1MB DRAM
730MB EIDE hard drive
1.44MB floppy drive
15" Mini-tower case
104 keys Windows enhanced keyboard and mouse

75Mhz Pentium processor	\$1,349
90Mhz Pentium processor	1,459
100Mhz Pentium processor	1,549
120Mhz Pentium processor	1,659
133Mhz Pentium processor	1,899

Add 2% for boxed Intel processor, Monitors sold separately. 2 yrs parts & labour warranty on system.



CA-Accpac/2000

System Manager	\$ 275
General Ledger	799
Accounts Receivable	999
Accounts Payable	999
Lanpak for Novell Network 5users	1,399

Inventory control, Order entry and Canadian Payroll modules to be released shortly.

Want improved productivity? Come in and try our full working demo on the most versatile accounting and network software.



We are here to serve you.



Microsoft
CERTIFIED PROFESSIONAL
Product Specialist

Give your computer the power to run Windows® 95 smoothly !!!



32K internal cache
Integrated Fan/heatsink
Equivalent ICOMP® performance of a 66Mhz Pentium processor
Lifetime limited warranty \$389
installation included

Memory modules	
4MB 72pin non-parity	\$ 179
8MB 72pin non-parity	359
16MB 72pin non-parity	679

Hard Drives	
NEC 730MB, 11ms, 256K	249
WD 850MB, 10ms, 64K	289
WD 1.09GB, 11ms, Mode 4	339

Video Accelerators	
Trident 9440 32-bit 1MB	99
Cirrus Logic 5434 64-bit 1MB	129
ATI Mach64 1MB/2M OEM	179/249
Stealth 64Video 1MB/2MB OEM	189/259
Stealth 64 Video 2MB VRAM	389

Prices reflected a 2% cash discount and are

Multimedia

Creative Value 4X	389
Creative Digital Schoolhouse 4X	489
Creative Multimedia Home 4X	579
Creative Performance 4X	549
Creative SB 32 wave table	229
Creative Vibra 16 (SB 16 OEM)	99
Panasonic 4X EIDE CD-ROM drive	189
Sony/Toshiba 4X EIDE CD-ROM drive	199
Panasonic 2X CD-ROM drive	89
Pro Sonic 16, 16-bit sound card	69

Fax/modem

USR Sportster 28.8 int./ext	249/279
USR Sportster 28.8 with DSVD	399
USR Courier 28.8 internal	549
Supra/Cardinal 28.8 internal	199
Creative Phone Blaster	339
Creative Modem Blaster 14.4	119
GVC 14.4 internal fax/modem	69
Megahertz PC Card XJ14.4/28.8	259/499

Services

CD recording—the best way for data archive
\$0.69 per MB, Maximum charge \$149. CD-R disc included for purchase over \$100.

Scanning — Using HP Scanjet 3c

All names and trademarks are properties of their respective owners.

How much will the Pentium Pro processor cost?

Intel haven't yet disclosed initial pricing.

When will Pentium Pro processor systems be available?

The Pentium Pro processor will arrive in late 1995, and Intel expect that Pentium Pro processor-based systems will be available from a variety of system manufacturers at that time.

The Pentium Pro processor looks different than other chips. Will a Pentium Pro processor fit into a Pentium processor socket?

No, the Pentium Pro processor bus is quite different from a Pentium processor bus so it is not designed to be pin compatible.

The component bus of a Pentium processor is designed to interface to an external L2 cache and includes features to optimize CPU-to-cache data transfers. In contrast, the first Pentium Pro processor includes a 256KB L2 cache in the same package and the CPU communicates with its L2 cache using a private internal bus. The component bus of a Pentium Pro processor is designed to interface to a cache coherent memory bus and includes features to optimize cache-to-memory data transfers.

The Pentium Pro processor package looks very expensive — is it?

The Pentium Pro processor is manufactured using the same silicon processing steps and the same packaging steps as today's 100MHz Pentium processor. The package does have two cavities which makes the package 40% larger than the Pentium processor package, but this is only a small cost increase in raw materials. Both die are simply wire bonded into their cavities and signals are routed between these cavities using standard pin-grid-array packaging techniques.

What about the thermal and electrical specifications? How hot will it run? At what voltage does it operate?

Power dissipation is proportional to the speed of the processor and to the square of its supply voltage. The first Pentium Pro processor operates at 133MHz with a supply voltage of 2.9 volts and dissipates a theoretical peak of 20 watts. However, power dissipation for all processors also depends on the software being executed. For more typical patterns of code, power dissipation for the Pentium Pro processor averages around 14 watts. Gunning Transceiver Logic (GTL) was chosen for the Pentium Pro processor bus signaling voltage since this is independent of processor voltage, and since its smaller voltage swing enables faster operation.

What kind of performance can I expect from the Pentium Pro processor? The Pentium Pro processor's performance is estimated at 200 SPECint92 at 133 MHz. For comparison, the 100 MHz Pentium processor will deliver 121.9 SPECint92.

Other Pentium Pro processor performance numbers will be released later this year.

What are the advantages of an in-package L2 cache?

Having the L2 cache in the package not only simplifies system design and saves space, it also means the CPU core can communicate with the L2 cache at full speed. Additionally the cache is non-blocking which means that transactions on the Pentium Pro processor bus don't stall the processor or block subsequent bus trans-

actions. For example, when a cache miss occurs, the Pentium Pro processor continues to process other instructions while initiating a bus transaction to satisfy the cache miss; these instructions could generate additional cache misses which could cause more bus transactions. The Pentium Pro processor can maintain up to four of these outstanding transactions.

ATECH COMPUTERS

3092 Cambie St. Vancouver, B.C. V5Z 2V9

Tel: 877-1812
877-1863
Fax: 877-2223

Tues. - Sun : 10:00am-6:00pm
Monday Close

Christmas Super Special

Pentium PCI/ISA Bus

P - 75	w/256K	\$2196	P - 100	w/256K	\$2396
P - 90	w/256K	\$2296	P - 120	w/256K	\$2596

- | | |
|--|---|
| <ul style="list-style-type: none"> * Intel Pentium CPU & Award BIOS * GIGA BYTE PCI Main Board * 8MB RAM (Up to 128MB) 72Pins * 850MB (Western Digital) Hard Drive * 3.5" (Epson) Floppy Drive 1.44MB * Trident PCI 32 Bit Video Card 1MB (2MB Max.) * Enhanced IDE PCI (On Board) * CD-ROM Drive Quad Speed 4x * Sound Blaster (Vibra) 16 Bit & Speakers * 19" Tower Case | <ul style="list-style-type: none"> * 200W CSA Power Supply * 101 Enhanced Keyboard * 15" SVGA Monitor L/R (Non-Int) .28mm * Microsoft Home Bundle CD Titles: * MS Encarta 95' Encyclopedia * MS Works 3.0 * MS Money * MS Golf * MS Dangerous Creature * MS Best of Entertainment Pack * Mouse & Pad |
|--|---|

PCI/ISA Bus (Basic)

P-75/90	w/256K..	\$1596/\$1696
P-100	w/256K.....	\$1796
P-120	w/256K.....	\$1996

- * Intel Pentium CPU & Award BIOS
- * PCI Green Mother Board
- * 8MB RAM (Up to 128MB) 72Pins
- * 850MB Hard Drive
- * 3.5" Floppy Drive (1.44MB)
- * PCI Video Card 1MB (2MB Max.)
- * Enhanced PCI IDE (On Board)
- * 19" Tower & CSA Power Supply 200W
- * 14" Non-Int. L/R SVGA Monitor .28mm
- * 101 Enhanced Keyboard
- * Mouse & Pad

PCI/ISA Bus (Multimedia)

P-75/90	w/256K..	\$1896/\$1996
P-100	w/256K.....	\$2096
P-120	w/256K.....	\$2296

- * Intel Pentium CPU & Award BIOS
- * PCI Green Mother Board
- * 8MB RAM (Up to 128MB) 72Pins
- * 850MB Hard Drive
- * 3.5" Floppy Drive (1.44MB)
- * PCI Video Card 1MB (2MB Max.)
- * Enhanced PCI IDE (On Board)
- * CD-ROM Drive (Quad Speed) 4X
- * Sound Blaster 16 Bits & Speakers
- * 19" Tower & CSA Power/200W
- * 14" Non-Int. L/R SVGA Monitor .28mm
- * 101 Enhanced Keyboard
- * Mouse & Pad

Two Years Parts & Labour Warranty For Basic Systems Price Subject To Change Without Notice.

Special!!

WESTERN DIGITAL

HARD DISK

1.20GB	\$409
1.08GB	\$359
850MB	\$289

HEWLETT®
PACKARD

HP 5L \$689.00

HP 660C \$559.00

Canon

BJC - 4000
Color Printer

\$429.00

Panasonic

4X CD ROM Drive

\$189.00

Fax/Modem

14.4 KB V.32 Internal

\$69

28.8 KB V.34 Internal

\$189

Will multi-processing be easier with the Pentium Pro processor?

The Pentium Pro processor bus was designed to support multiple Pentium Pro processors connected in parallel. The Pentium Pro processor component bus is a symmetric multiprocessing bus and includes full support for the MESI protocol. 'Glueless' MP Pentium Pro processor system designs are supported; that is, no ad-

ditional system logic is required for multi-processing since the Pentium Pro processor includes all of the logic required to directly support the interconnection of up to four Pentium Pro processors. This means that it's very easy - and cost-effective - for system designers to include multiple Pentium Pro processor processors, essentially by just providing sockets for the additional processors.

Is there a new instruction used by the Pentium Pro processor? What does it do?

A conditional move instruction was added which may be used by compiler writers as an alternate to a "test an set" construct.

This allows a data dependent branch to be eliminated. The resulting code will be more predictable by the processor and will thus deliver higher performance.

What about floating-point performance?

Internal evaluation of floating-point performance is still ongoing, so Intel haven't yet released numbers.

Is the Pentium Pro processor a 64-bit processor? Does it support 64-bit integer instructions?

No. Like all Intel processors since the Intel386 processor, the Pentium Pro processor is a true 32-bit processor. The general purpose registers are the same as on previous generations of Intel Architecture processors and the instruction set is supported with only one new instruction being introduced.

However, there are a variety of wider datapaths both inside and outside the chip. One visible feature that is sometimes misinterpreted is that the Pentium Pro processor, like the Pentium processor, has an external 64-bit bus in order to communicate more efficiently with system memory. This wider external datapath increases bandwidth between the Pentium Pro processor and the system, but doesn't make the Pentium Pro processor a 64-bit machine.

The Pentium Pro processor has about 21 million transistors in total. Does this put the Pentium Pro processor at a cost disadvantage? Is it difficult to manufacture?

No. The Pentium Pro Processor CPU core has 5.5 million transistors, and the L2 cache contains 15.5 million.

The main determinant for product manufacturability and cost is the die size, which is in large part a result of the process technology that the product is manufactured on. The first Pentium Pro processor will be built on the same high-volume process as today's mainstream Pentium processors. Soon, Intel will begin manufacturing the Pentium Pro processor processor on a new 0.35 micron process which is already in use today for other products. While enabling even higher clock frequencies and higher performance, this also makes the Pentium Pro processor's die size much smaller and easier to manufacture.

The 15.5 million number for the L2 cache is also somewhat misleading. Since the L2 cache is a very regular uniform structure, the transistors may be placed more densely resulting in a relatively small die area. While the L2 cache contains nearly three times the transistor count of the CPU core, the die size is actually smaller than the Pentium Pro Processor CPU.

ICI

INFOWAVE COMPUTER INC.

Tel:(604)273-1368 Fax:(604)278-5268

1780-4311 Hazelbridge Way, Richmond, BC V6X 3L7

(Within N-E corner of Parker Place Shopping Centre, Please see map below)

Store Hours:
Mon-Sat:10-7
Sun :11-6

Christmas Blow Out Special

Intel Pentium-100

Intel Pentium 100MHz CPU
PCI Bus/256K Cache
8MB RAM / Up to 128MB
850MB Enhanced IDE HDD
1.44MB 3.5" FDD
Enhanced IDE & Fast I/O
PCI 1MB SVGA Card
14" N/L/R SVGA Monitor
101 Enhanced Keyboard
Mid-size Tower Case
MS-Comp. Mouse + Pad

8MB RAM
850MB HD

1758

2068

W/ 4x CD-ROM

Panasonic 4x CD-ROM
SoundBlaster 16 Sound Card
Dual Shielded Stereo Speakers

256K Pipeline Cache +\$98

Pentium-120/133 +\$200/\$500

16MB RAM (from 8MB): +\$360

1.2GB HDD (from 850MB): +\$90

X'mas Gift Ideas

Upgrade to 486DX2-66, \$199
using your old 30 pin
memory (incl. Mother
Board & CPU)

Paradise MPEG Card \$299
Full screen movie
@ 30 frame/sec.

Panasonic 2x CD-ROM \$78
Drive with all cables

486DX2-80 complete \$1148
VLB System including:
4MB RAM, 540 MB HD
14" SVGA Monitor....

CD Titles

Try Before you buy

Edutainment

3D Dinosaur	28
Animals, San Diego Zoo	19
Arthur's Teacher Trouble	23
Carmen Sandiego	28
Forever Growing Garden	28
Gus Goes To CyberTown	18
Just Grandma And Me	23
Math Drill (Floppy)	48
Mavis Beacon Typing for Kids	28
MS Dangerous Creatures*	28
Musical Instruments	25
Peter Pan/Eagle Eyes	22
Pinocchio	25
Power Rangers	25
Scooter Magic Castle/Eagle Eyes	22

Encyclopedia & Tools

American Heritage Talking Dictionary	28
Compton's Encyclopedia 95	29
Grolier's Encyclopedia/Win V6.0	28
Mathematics Encyclopedia	28
Mathematics Library	32
MS Ancient Lands*	38
MS Encarta' 95*	68
MS Works 3.0 / MS Money 3.0*	48
Webster's Interactive Encyclopedia	28

Human Body & Health

Complete Guide to Drugs	32
Complete Guide to Symptoms	32
Family Doctor 3rd Ed.	25
Human Body	28
Mayo Clinic-Family Health Book	28
Mayo Clinic: Family Pharmacist	28
Mayo Clinic: Sports Health & Fitness	28
Mayo Clinic: The Total Heart	28
Safety Monkey	28
Virtual Body	28
Welcome to Bodyland	28
What is a Belly Button	28

Games

7th Guest	24
Aces of the Pacific	28
Day of Tentacle	28
Dark Forces	55
Dawn Patrol	32
Doom II	55
Journeyman Project Turbo	28
Lord of the Ring	28
Menzoberranzan	28
MS Golf*	29
Nascar Racing	39
Outpost	29
Panzer General	29
Quantum Gate	15
Rebel Assault	33
Return to Zork	15
Sam & Max Hit the Road*	33
SimCity 2000	32
Ultimate Domain	28

Multi Languages

300 Poems (Tan Dynasty)	32
Around the World in 80 Days	28
Chinese Folk Arts	28
Chinese Proverb Stories	32
Conversations in Six Languages	28
English Learning Plaza	28
Fairy Tales in 5 Languages	28
Learning English through Games	28
Lexicomp Vocal Dictionary	48
Sun-Zi War Strategies	32

(Call for titles not listed. * is for bundle.)

All systems come with 5-year labor & 2-year parts warranty.

- Windows 95:	\$130	System	- Datum/MegaImage/Sceptre 15"
- 14.4K Int. Fax/Modem:	\$70	Upgrade	N-I L/R Monitor \$130/\$150/\$210
- 14.4K Int. Voice/Fax/Modem:	\$85	Options	- ATI Mach64D/V 2MB PCI: \$140/260
- 28.8K Int. Fax/Modem:	\$180		- Diamond Stl64D/V 2MB PCI: \$160/260

MONITORS

Proview 14" N-I L/R	\$298
MegaImage 14"/15" N-I L/R	\$298/438
Sceptre 14"/15" N-I L/R	\$318/498
Sceptre 17" 28"/26	\$888/988
NEC 15" XE/XP	\$748/848
NEC 17" XV/XE	\$1098/1448
Sony 15" SF/17" SF	\$678/1268

VIDEO CARD

VLB CL5429 1MB/2MB	\$98/168
PCI T9440 1MB/2MB	\$108/178
ATI PCI Mach64D/V 2MB	\$248/368
ATI PCI Turbo64V 4MB	\$598
Diamond PCI Stl64D/V 2MB	\$268/368

PRINTERS

Fujitsu 24pin Wide Dot-matrix	\$200
Canon BJC-4000 Color	\$399
Canon BJC-70 Color Portable	\$498
Canon LPB-430W 300dpi	\$598
Brother HL641 300dpi 6ppm	\$528
Brother HL660 600dpi 6ppm 2M	\$748
HP DeskJet 660C Color	\$548
HP 5L 600dpi 4ppm 1MB	\$688
HP 5P 600dpi 6ppm 2MB	\$1238

miroCONNECT 34 wave: Sound Card+28.8K Fax/Modem \$428

VoiceMail(Full-duplex speakerphone)/V.34FaxModem/16bit Wavetable Sound Card

All prices reflect 2.5% cash discount and subject to change without prior notice.

MOTHER BOARD & RAM

VLB/PCI 486DX2-80 (256K)	\$228/278
VLB/PCI 486DX4-100 (256K)	\$288/338
PCI Pentium-90 Giga/Triton	\$618/638
PCI Pentium-100 Giga/Triton	\$718/738
1MB/4MB 30pin 70ns	\$48/188
4M/8M/16M 72pin 70ns /EDO	\$Call

HDD/TAPE DRIVES

Enhanced 540MB IDE	\$238
Enhanced 850MB IDE	\$278
Enhanced 1.2GB IDE	\$368
Colorado 350MB/700MB T/D	\$198/308
Comer 420MB/850MB T/D	\$248/408

MODEM

14.4K Voice/Fax/Modem Int.	\$90
28.8K V.34 Fax/Modem	\$190
28.8K V.34 Voice/Fax/Modem	\$238
USR 14.4K Int./Ext.	\$128/150
USR 28.8K Int./Ext.	\$268/288

CD-ROM & SOUND CARD

Panasonic 2x CD-ROM	\$78
Panasonic/Toshiba 4x CD-ROM	\$218
NEC 6x SCSI CD-ROM	\$618
SoundBlaster 16/AWE 32	\$108/228

Notebook

SCEPTRE SOUNDX

486SX25/4MB/260MB/Mono	\$1118
486SX33/4MB/340MB/Color	\$1668
DX2-66/4MB/340MB/Color	\$2688
DX4-100/8MB/540MB/Color	\$3298
P-90/8MB/540MB/Color	\$3998

Chinese/Japanese Word Processing

Window 95 ready:	
TwinBridge 4.0 (Std. Chinese)	\$278
TwinBridge 4.0 Upgrade	\$99
No need for COM port:	
GoGo Pen System (3"x3")	\$299
Fine Art Pen System (6"x6")	\$388

Free estimate on upgrade & repair



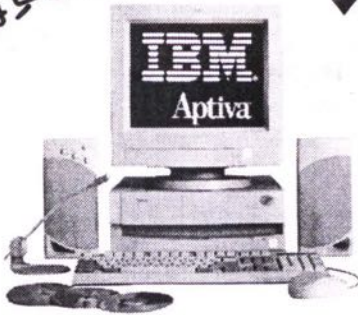
TANGENT COMPUTERS

天鈞電腦公司

Why settle for clones?

購買 IBM 良機

Buy **IBM** Aptiva™



◆ Features: Interl Pentium 100/133 MHz

1. 8MB RAM Expandable to 128MB
2. 1.0 GB HD
3. 28.8K Voice Fax Modem
4. Communications Centre
5. MPEG Video Card
6. 4X CD-ROM
7. 15" IBM Monitor
8. Lots of Software



- ◆ Features Depends on Models
- ◆ 1 Year Warranty on Monitor

- Standard 3 Year Express Exchange Warranty
- Reliability and Quality You Can Trust
- Easy to Learn and Use for All Humanbeings.

Free Delivery in Vancouver, Burnaby and Richmond Area!

聖誕節優待期間凡購買 IBM® Aptiva™ 另贈送 4 小時課程 (For Aptiva Systems Only)

IBM and Aptiva are registered trademarks of the International Business Machine Corporation (Price subject to change without notice!)

2221 West Broadway, Vancouver, B.C. V6K 2E4 (Free underground parking)

Business hours: Tue.-Sat. 10:00am-6:00pm, Sun: 12:00am-6:00pm; Mon.: Closed

**Tangent Special
Pentium 75 System
for \$2538**

- ANUS Pentium Triton Main Board
- 8MB RAM
- 850 MB HD
- 1MB PCI SVGA Card
- SB 16 Virba Sound Card
- 4 Speed CD-Rom, Speaker
- 15" NI L/R SVGA Monitor
- 15" Case/230 Watt PS
- Logitech Mouse/Pad
- Windows 95 Preloaded

- 2 Years Parts and Labour Warranty

Quality & Service is our Name!

NEC

**hp HEWLETT®
PACKARD**

Canon

Authorized dealer

Authorized dealer



Memory Market Set to Double

Dataquest Inc. reports that the move to Pentium PCs and Windows 95 have provided a springboard for the worldwide memory market, which will jump from \$48 billion in 1995 to \$98 billion by 1999.

PCs will consume at least three-fourths of DRAM demand by 1999 and reach nearly \$79 billion in revenue, forecasts Dataquest.

"Memory-hungry software applications and faster processors, coupled with a strong PC market, mean a bonanza for DRAM manufacturers," says Ron Bohn, principal industry analyst of Dataquest's semiconductor memories program. "It's a spectacular market when not only PC unit shipments rise but also DRAM megabytes per shipment go up, as we see happening in the PC memory market."

Dataquest forecasts that the current DRAM shortage will persist into 1997, which will mean high revenue growth followed by a short period of

softer growth because of capacity absorption. DRAM revenue in 1995 should increase 60 percent over 1994, says the market research, which is based in San Jose, California.

PC AUCTION

COMPUTER STORE

New, Pre-Owned, Consignments
Computers & Accessories



Is your old computer
getting the best of
you

Bring it to us, we will service it, put it on
consignment and sell it for you.

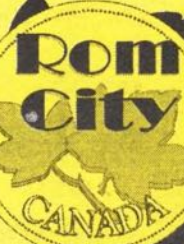
Need a larger and newer
computer but can't
afford a new one,
a little nervous on
what you should buy



Come in to PC Auction and check out our find
line of pre-owned computers, 486's, 386's, 286's,
MacIntosh, Printers, Modems, Monitors,
plus Accessories, Hard Drives, Memory, Etc:

Ph: 241-8555 Fax: 241-8589

7930 Williams Rd (corner #3 & Williams)
in the high traffic area of Broadmoore Mall



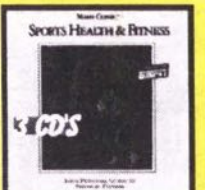
1-800-ROM-CITY

Canada's #1 Mail Order HOTLINE

CALL FOR
OUR FULL
COLOUR
BROCHURE



**WINDOWS 95 upgrade
ONLY \$89.95**



**MAYO CLINIC 3CD SET
SPORTS HEALTH & FITNESS
ONLY \$59.95**

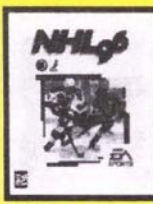
FREE!
Free shareware game when
you purchase 2 or more titles!



SHIPPING: standard prepaid
Ontario: \$5.00 rest of Canada \$7.00
COD add \$3.50 OVERNIGHT: Purolator
call for cost (Approx \$5.00 to \$12.00)



**PHANTASMAGORIA
\$58.81**



**NHL96
\$49.78**



**MAGIC CARPET II
\$57.88**



**APACHE
\$57.88**



FULL THROTTLE \$49.95

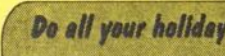


**MECH WARRIOR II \$59.95
MORTAL COMBAT III \$59.87
WING COMMANDER III \$58.88
COMMAND & CONQUER \$62.99
STAR TREK: A FINAL UNITY \$59.95**



Kids Pix

And learn about computers
at the same time!
1. Aesop's Fables & Cinderella
2. Paper Bag Princess & Mud Puddle
3. Scary Poems & A Long Hard Day At The Ranch
4. Tale of Peter Rabbit & Heathers First Home Run
ONLY \$17.99 ea.



Do all your holiday shopping from home!
Need a special game? Don't see it in our ad?
CALL US 1-800-ROM-CITY (905-264-0303)
Your new game is just a phone call away!



ECOQUEST \$18.99

Delivered in
time for Christmas
(shipping until Dec 21st)



**THE EVEN MORE
INCREDIBLE MACHINE
\$18.99**

99¢

CARTOON CLASSICS

*when you purchase 2 or
more children's
titles



Porky Pig
Bugs Bunny
Daffy Duck

Keeping Up

in the Information Age

You've got the basic package,
now see What your system
can really do!

**Add ons, such as
Multi-media**

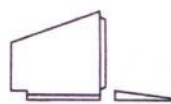
\$149 and up

**Software-up to 50% off
Accessories 20%-50% off
Amplified Speakers
- a Pair for \$25**

**3000 Customers
since 1993**

**SERVICE . SUPPLIES
COURSES**

Free Delivery on order's over \$35

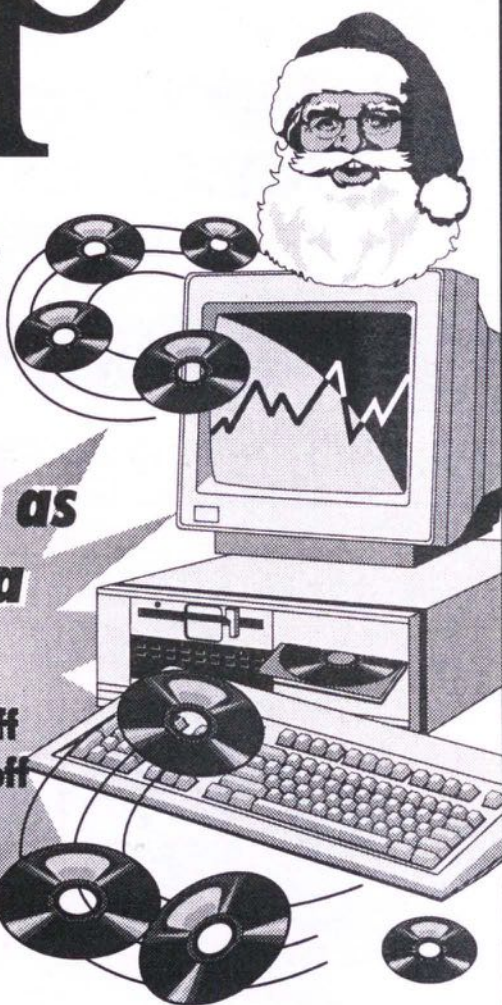
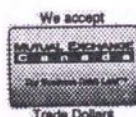


**SUPER-BYTE
COMPUTERS Ltd.**

210-22529, Lougheed Hwy, Selkirk Center, Maple Ridge, B.C. V2X 0L4

CHECK OUT SUPER-BYTE'S LOCAL B.B.S.
FOR MORE INFO CALL

Phone: 463-8733



CD ROM Titles

EDUCATIONAL

Art History Encyclopedia
Botanical Encyclopedia
Chinese Common Idioms
Chinese Cookbook
Chinese Text Reader
Digital Gourmet
Educational Overload
Edumedia(Sounds)
Electronic Bookshelf
Holy Bible(King James Ver)
Home & Business Legal Adv.
Interactive Chinese
Kid's Coloring Wonderland
Mini Story Time
Philatelic Encyclopedia
Preschool Edutainment
S.A.T. Survival Kit
Secret Subjects
Traveler's Handbook
World of Education

ENTERTAINMENT

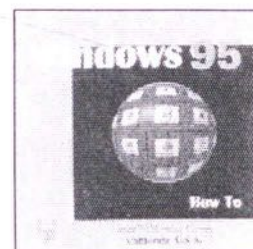
100 New Dos Games
3-d Manai Games
3-D Mega Games
350 Games Disc
49er Windows Games
50 Window's Games Vol.1
50 Window's Games Vol.2
50 Window's Games Vol.3
50 Window's Games Vol.4
50 Window's Games Vol.5
All You Can Play
Doom Expert
Family Fun
Games Galore
Killer Games Collection
LasVega Casino Games
Power Stick Games
Puzzle 5000
Sim City 1.0
Window's 51 Games
World's Greatest Game Disk

GRAPHICS

3000 True Type Fonts
Animation Tour
ANSI-mania
Clipart Library
Desktop Publisher's Dream
Designer Clipart Vol.1
Designer Clipart Vol.2
Designer Clipart Vol.3
Designer Clipart Vol.4
Designer Clipart Vol.5
Fabulous Photos
Fractal Art Gallery Vol.1
Fractal Art Gallery Vol.2
Graphic's PRO-SHOP
ICON Library
Image Library I
Image Library II
Image Library III
Multimedia Toolkit
Perfect Pictures
Travel To Space

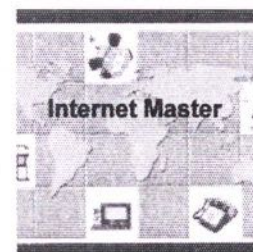
MISCELLANEOUS

50 Window's Applications
Bugs Bunny Cartoons
Business Library
"C" Developer's Toolkit
Championship Wrestling #1
China Traveler Sampler
Complex LINUX (Winter 95)
Compu-Fix
HAM Toolkit
INTERNET Toolkit
Massive MIDI Collection
MIDI and WAV Workshop
Music Toolbox
OS/2 Collection
Sound library II
Super Shareware Collection
Top 101 Multimedia
Utilities GOLD Collection
Window's At It's Best
Window's Programs



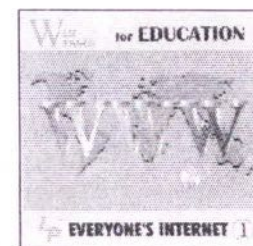
Windows 95 How To

It shows users how to unlock the power of the MS operation system of the future and become Windows 95 literate. Preview and learn about Windows 95 before buying it.



Internet Master

A comprehensive reference source covering Internet Dictionary, Reference, FAQ, Internet How-to, Web pages of Internet resources, lets you access Internet, get free hours to try.



Web Pages for Education

Over 2000 actual WWW pages provide you all educational information for K-12 teachers, college & university faculty, parents, students, and lifelong learners.



Web Pages for Computer & Software

It provides users a database of the Hottest new Web sites of Archives, Companies, PCs, Graphics, Hardware, Literature, Network, Programming, Unix, Multimedia, etc.

Some gift ideas:

Math Master

This 5-in-1 reference source CD covering Algebra, Trigonometry, Geometry, Calculus, Statistics is a complete reference books for high school students or college freshmen.

- * Textures Pro vol. 1
- * Textures Pro vol. 2
- * The history of Painting

Visual Chinese Cookbook

Three hour of video clips will guide you step by step in the preparation of 24 dishes. You will be amazed at how fast you can learn to cook Chinese food with little cost.

- * 60 Best Casino Games
- * 1000 Year Potlato
- * 100 Chinese Poems

Buy 5 get one FREE

\$17.99 each
plus tax & SH

BMP Publishing Ltd.

To order call (604) 739-6588

7 days Money Back Guaranteed!



Portables coming on strong

Mike Whitfield

The portable revolution is coming of age. No longer used as a glorified word processor or presentation device for the corporate elite, notebook computers now have mainstream applications for anyone at anytime, anywhere. It has been stated that notebook computers are not as powerful as desktop systems, when in fact, notebooks are able to compete head on in terms of speed, power, and flexibility. There are important considerations when purchasing desktops that are better represented by a notebook computer. For example, when purchasing a desktop you must consider furniture, space costs, health risks, poor working environments, and the inconvenience of location and time restraints. The notebook computer of today provides you with power, portability, and more effective expense/time management.

Most forget that with a desktop, one needs desk, a large desk since the computer covers the entire surface of most, leaving little or no space for books or other material. Keeping in mind that a desk and chair average about \$500 not to mention dedicating the necessary space for storage. Large business have already taken advantage of the cost effective solutions of notebook computers such as virtual office. The concept of the virtual office is literally an office on the go, no time or location restraints, a fully functional office that can be carried with you. By integrating wireless technology, employees can be more effective and companies can be more competitive. By implementing a virtual office environment, businesses reduce the need for expensive office space, electricity, insurance, and office furniture. IBM was able to reduce 44,000 square feet alone by providing notebooks for staff. The

advantages aren't only for company itself, the employees are able to get out of the office to see their clients allowing complete control over their time.

Consider this, most people will not sit within six feet of a television set because it may damage their eyes. Yet, these same people will sit inches away from a computer monitor that emits similar levels of radiation as a television set. Even monitors that are "environmentally friendly" emit high levels of radiation resulting in tiredness, headaches and strained eyes. Notebook computer displays, on the other hand, emit no radiation. Most quality notebook LCD displays have no flicker, are completely flat, and therefore reduce health risks associated with desktop systems. The last thing you need to worry about at home is the stress you encountered throughout your day. Another hidden cost to having a desktop system at home is not only space (den or bedroom) but the negative psychological effects of linking that stressful work environment with your quality home environment.

The portable revolution, an era in which people have full control over their time and environment. No more being a slave of the corporate world, tied to a desk and a prisoner of the office. The ideal working environment would allow for true flexibility and freedom to work when and where you like. Few companies have the vision or the insight to implement new technology, only a few companies can be a leader in their industry. The question is, do you want to be a leader? The future is notebooks, with one out of every four PCs being sold next year are estimated to be notebooks, the future has already begun. □

About the author: *Mike Whitfield can be reached at (800) 538-8212.*

"Winking @ someone in the dark is like owning a business without advertising. You know what you're doing but nobody else does"

Jamie Leighton, Advertising Specialist
Computer Player, 604.739.8266

N & K COMPUTER LTD.

AMD DX4-100 W/8MB & PCI
Only \$1370

Triton-PENTIUM 75	\$1570
Triton-PENTIUM 90	\$1680
Triton-PENTIUM 100	\$1760
Triton-PENTIUM 120	\$1860
Triton-PENTIUM 133	\$2100

Gigabyte PCI motherboard w/256K
(Pentium system w/INTEL-Triton chipset)
8 MB RAM (72pin, 70ns)
850 MB EIDE Hard Drive
1.44 MB Floppy Drive
Onboard EIDE controller w/16550 UART
BTC 64 bit PCI SVGA card w/1 MB
15" Tower case w/200 watt PS
14" Low Radiation SVGA monitor .28dpi N.I.
BTC Windows 95 Keyboard
Mouse & CPU cooling fan

MONTHLY SPECIALS

BTC 64-bit PCI SVGA CARD
(Faster than T9440 & CL 5434)
\$129

SEAGATE 1.08 GB Hard Drive
(<9ms, EIDE Mode 4)
\$330

WD 1.6 GB Hard Drive
\$490

14" SVGA monitor .28dpi N.I.
\$290

ATI VIDEO -IT!
(Video Capture Card)
\$275

Internal FAX MODEM
14.4 **\$69** 28.8 **\$199**

Upgrade & Unlisted items.
CALL or COME

System Options

16MB RAM (72pin, 70ns).....	+\$340
15"SVGA monitor .28dpi N.I. L/R.....	+\$140
1.2GB Hard Drive.....	+\$100
1.6GB Hard Drive.....	+\$235
4X CD-ROM Bundle.....	+\$270
6X CD-ROM Bundle.....	+\$430
14.4 Int. FAX Modem.....	+\$65
28.8 Int. FAX Modem.....	+\$175
19" Tower case w/200watt PS.....	+\$10
24" Tower case w/230watt PS.....	+\$60
1.2MB Floppy Drive.....	+\$50

All systems have a 48 hour burn-in test,
2 yr. parts & labour warranty.
Prices subject to change without notice.

#207-4968 Victoria Drive
(Near 34th Ave.)

Vancouver, B.C. V5P 3T7

Tel/Fax 325-9258

Open M-F 10:30-6 Sat. 11-5, Closed Holiday

HOT GAMES

7TH GUEST	\$23
INDIANA JONES	\$20
LEISURE GAME PAK	\$20
LEISURE GAME PAK II	\$20
MAD DOG II	\$25
MAD DOG MCCREE	\$21
NASCAR	\$36
OUTPOST	\$22
PANZER GENERAL	\$25
REBEL ASSAULT	\$35
SIMCITY 2000	\$26

... and many, many more!

CD-ROM BUNDLE

SoundBlaster 16 OEM,
CD-Drive, Shielded Speakers
4X \$299 6X \$455

VARSIITY COMPUTERS

Serving Vancouver Since '87

Monitor Repair

- Free estimates in shop
- Drive-in service - full time technician on staff
- Pick-up & delivery available
- Repair most major brands
- Loaner available at low rates

Hard Drive Special

- 530MB \$300 installed
- 850MB \$380 installed
- Simplified data transfer included

So you want the internet?

- We offer in-house installation and training
- Free internet software
- Talk to a friend overseas on the internet!

All for just
\$40

Medical Manager Billing Package

Complete Hardware & Software Rental for

Only **\$69**
per month

3737 West 10th Ave. Vancouver B.C. (10th Ave. & Alma)
Phone (604) 222-2326, 222-2355 Fax (604) 222-2372

Looking for a computer and services here it is!!!

Intel Pentium PCI / EDO ram

75 Mhz	\$1750
90 Mhz	\$1880
100 Mhz	\$1950
133 Mhz	\$2280

Trident chipset PCI Board
Supports Plug & Play
4 PCI slots 4 ISA slots
256K ext.cache, 2 serial 16550 fast
UART ports, 1 parallel with EPP/ECP,
floppy drive conn. support up to 2.88m
support fast page Dram or EDO ram

486 PCI / EDO ram (Cyrilx/AMD cpu)

486 80 Mhz	\$1370
486 120 Mhz	\$1460
5X86 100Mhz	\$1550

PCI bus board accepts most CPUs
Supports CPU L1 write back
cache, can be upgrade with Cyril
M1-sc CPU / EDO ram support
2 serial 16550 Fast UART ports,
1 Parallel with Epp/ECP, Floppy
drive support up to 2.88 meg.



ALL SYSTEMS WITH :

- 8 meg EDO ram
- 1.44 m floppy drive
- 850 meg EIDE hard drive

- PCI SVGA card with 1m DRAM
- 14" SVGA Energy Star,
Low Radiation monitor
- 2 YEARS WARRANTY

- System Integrations & LANS
- On-site & in house services
- Sales & Supports
- Upgrades & Repairs



Copal

computer systems

120-12871 Clake Place, Richmond, B.C. CANADA
Phone:(604) 351-7236 Fax: (604) 264-9872

Cold Water and Clocks - inside the motherboard

Technical Tips and Hints

Rick McLaughlin

The CPU and Memory

All of the components in a personal computer are coordinated by a system clock. The clock generates a regular alternating signal of high and low voltages. It coordinates the various computer chips like a metronome coordinating the players in a grade school band.

The clock speed is measured in Megahertz. One Megahertz (1 MHz) is a signal that alternates between high and low values one million times a second. A 33MHz PC has a clock which "ticks" and "tocks" 33 million times each second. Each tick-tock is called a cycle.

The main board generates a master clock pulse that coordinates the CPU, memory, local bus, and support chips. If you closely examine the catalogs and ads, you will see that a single vendor may offer CPU speeds from 50 MHz up to 133 MHz, but on all systems the main board will be the same and the memory will be the same. It is possible to speed up the support chips, but useful work isn't done faster just because the clock speeds up. Two years ago, there was a brief period where most of the companies built main boards with a clock speed of 50 MHz, but everyone realized this was expensive and fairly useless. Today, the main board clock on a 486 system generally runs at 25 or 33 MHz. (There are faster boards available).

The CPU is the only chip that benefits from a higher speed. Rather than increasing the main board clock, and then putting a burden on the rest of the circuits, modern practice calls for the CPU to create its own internal clock at 2 or 3 times the main board clock. A 486 DX2 chip generally doubles the 25 MHz clock to 50 MHz, the 33 MHz clock to 66 MHz, and triples a 40MHz to a 120MHz. A 120 MHz CPU can be based

on four 33 MHz ticks, and a 133MHz... well, you can guess.

Get in Gear

To add up a column of numbers with a pocket calculator, you simply type each number in and press the "+" key (or the "=" key at the end). Most users probably think that a PC

spreadsheet program does the same thing. However, the human brain has actually been doing the hard part of the operation, moving down one row in the column, focusing on the number, and recognizing it. Each PC instruction carries with it a number of additional operations that would not be obvious to the casual user.

Each generation of Intel CPU chip has performed this operation in fewer clock cycles than the previous generation.

A 386 CPU required a minimum of 6 clock ticks to add two numbers.

A 486 CPU can generally add two numbers in two clock ticks.

A Pentium CPU can add two numbers in a single clock tick.

RISC systems can run "superscalar." This means that they can perform several operations at once, and may be able to add several pairs of numbers in the same clock tick..

To make a car go faster, one steps on the accelerator. Extra gas makes the engine rotate faster. When RPM gets high enough, it is better to shift to a higher gear. The PC system clock is like the engine RPM. The CPU model selects the gear. The original 8086 processor was like first gear, and the 486 is like fourth gear. A 25 MHz 486 has the same processing power as 40 MHz 386.

Thus while the 486 may not be the best current technology, it remains adequate for most home and desktop business systems. The Pentium processor becomes attractive not because it is re-

CompuCanada Computer Inc.

#200-2940 Main Street,
Vancouver BC, V5T3G3
Tel:(604) 872-6066
Fax:(604) 872-0288
Business Hours:
Mon.- Sat. 9:00-18:00

The Last Chance Christmas Special!

Upgrade

The lowest price upgrade
in this season!!!

Upgrade to DX2-66MHz System from as low as \$75

Upgrade to DX2-80MHz System from as low as \$80

Upgrade to DX4-100MHz System from as low as \$115

Upgrade to Pentium 100MHz System from as low as \$245

ally needed, but because Intel is now pricing them so low that they are available at the same price as slower 486 chips. RISC systems like the PowerPC should be considered only by users who have a very clear view of exactly what programs are to be run on the machine.

Nanoseconds

All the ads and specifications quote clock speed in Megahertz. However, the more important number is the length of time between clock ticks (the cycle time). Such periods are usually measured in nanoseconds (billionths of a second) abbreviated ns.

Electricity travels through a copper wire just a bit slower than the speed of light (Approx. 186000 miles per second). It becomes important when the distances are very long (astronomy) or when the times are very short (computers). A nanosecond is the amount of time that it takes light (or an electric signal) to travel about one foot.

PC clock speeds are 25, 33, 50, 66, 100, and 133 MHz. These appear at first to be a strange collection of numbers. However, the corresponding cycle types display a much more regular pattern:

Clock	Cycle
33MHz	30 ns
50MHz	20 ns
66MHz	15 ns
100MHz	10 ns
133MHz	<10 ns

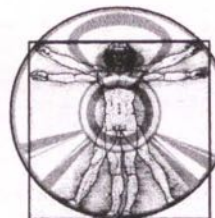
A processor with a 100 MHz clock must perform operations in less time than it takes for electricity to travel 10 feet. The chip is very small, but it has millions of circuits. All must be manufactured to a very high level of precision.

However, it is much simpler to apply quality control to a chip the size of a fingernail than to the entire main board. This by itself show the problems of a higher speed main clock, and the benefit of capping the main board design at 25 or 33 MHz (40 to 30 light-feet of signal distance).

Memory

A computer chip receives and transfers its data through the "pins" that run along each side. A memory chip receives part of the memory address on one set of pins, then after a period of time it responds with the data at that memory location. The delay between address and data is the response time of the chip.

Now Open!



120 E. 3rd St.
North Vancouver
987-DISC (3472)

InterAction

Your CD-ROM Specialist

BUY ⊕ SELL ⊕ RENT ⊕ TRADE

Come and check out the ultimate Christmas gift:
The Vfxl Virtual Reality Headgear System by Forte
Just \$1298.00

2 for 1

rental of any PC CD-ROM,
Sony PlayStation or Sega
Saturn title with this coupon.



MapleOak Computer Solutions



AST

TOSHIBA

brother.

COMPUTER ASSOCIATES

NEC

HEWLETT PACKARD

IBM

Pentium 100 PCI

8MB RAM, 850MB EIDE Hard Drive
14" SVGA Color Monitor, NI, .28
1 MB PCI Video Card
3.5" FD, KB, MS Mouse, MiniTower Case

\$1749

Options:

Pentium 75 \$1649 Pentium 90 \$1699
Pentium 120 \$1949 Pentium 133 \$2189

486DX4-100 LB

4 MB RAM, 850 MB EIDE Hard Drive
14" SVGA Color Monitor, NI, .28
1 MB Local Bus (LB) Video Card
3.5" FD, KB, MS Mouse, MiniTower Case

\$1199

Options:

486dx2-66 \$1149 486dx4-120 \$1249

Customize Your Dream System

4MB to 8MB+ \$165 8MB to 16MB+ \$330
15"/17" Monitor ..+ 139/529 NEC MultiSync XV15+ \$369
ATI Xpression 1MB ..+ \$129 ATI GraphicsProTurbo 2mb \$349
Diamond Stealth64.....+ \$270 14.4/28.8 FAX Modem ..\$69/199

Brand Name System (Monitor extra)

AST Bravo 4/66D 8MB 540 MB HD\$1799
AST Server Manhattan P/60, 1.0GB, CDROM,16MB...\$3972
NEC PM V466 Dx2/66 8MB 540MB HD \$1762
HP Netserver 486/66 8MB, 1GB SCSI \$4777

Notebook

Toshiba T2130cs 486/75/8/520/DSTN Color\$3728
AST Ascentia 910N 486/75/8/510/DSTN.....\$3899
NEC Versa M 486/75/8/340/DSTN Color \$3668

Special Offer

HP Color Scanner IIcx . \$1199

Accpac Plus GL/AR\$499ea

5 years

warranty on labor & 2 years warranty on parts.
Third year parts warranty, add \$50, First year on-site warranty, add \$70.

Upgrade Your Systems

Memory Upgrade (Can't run some program? Out of memory?)

1/4 MB, 30 pin \$46/165 8/16 MB, 72 pin \$329/649
EDO 4/8MB \$195/360 Memory Converter 30->72..... \$49

Hard Drive (Not enough space to install new program?)

850MB/1.2GB EIDE . \$269/339 1/2.1 GB SCSI HD \$409/1049

Internet Upgrade (Information Super Highway?)

14.4/28.8 Fax modem.... \$69/199 Internet Access Kit \$9.99

Multimedia Upgrade (Access CD-ROM information)

CD-ROM 2x/4x/6x .. \$85/189/595 SoundBlaster 16/AWE32...\$95/239
MS works & money (CD) \$39 MS Games.....\$5
Microsoft Golf (CD)\$19 Microsoft Bookshelf95.....\$49
4x CD-ROM/SB16/Spks..... \$289 2x CD-ROM/SB16/spks \$185
SB Multimedia Home 4x\$548 Blaster CD 6x (900kb/s)\$399

Printer (Make your job looking nicely)

HP DeskJet 660C\$535 Canon BJ-4000 \$419
Brother 660,2MB,600dp..... \$725 HP LaserJet 5P\$1230
HP LaserJet 4+,2MB \$1999 HP LaserJet 2/4mb upg...\$189/279

Motherboard Upgrade (Run too slow? spend a lots time to wait?)

486dx-66/100/120... \$199/259/289 Pentium 100/133..... \$629/995
Pentium Overdrive P83 (upgrade the 486dx-33) \$349

Software Upgrade

MS Office Pro for 95 ... \$449 Winfax Pro 4.0\$159
Quicken 4.0 Deluxe.....\$89 CA Accpac Plus GL/AR \$499each
WordPecfect 6.0\$369 Lotus 123 5.0\$389
Maximizer 3.0\$135 Coreldraw 4.0 (CD) \$69
Norton Utilities 95\$155 ReachOut 5.0 Host & Viewer\$149

Others

800MB TapeBackup \$270 HP Colorado Trakker 700 MB...\$499
2nd Printer Port.....\$19 3.5"/5.25" Floppy Drive \$38/58
10 3.5" Diskette\$4 APC Surge Arrest\$29

Merry Christmas - CD special

7th Guest \$22 808 Great Letters..... \$58
Arthur's Teach Trouble . \$19 C++ Ref Guide & Dev Kit . \$24
Bodyworks 4.0 \$25 Coreldraw 4.0..... \$69
Children's Encyclopedia \$28 Chinese/English Dictionary \$28
Family Doctor \$18 GuideBook To Mathmetics. \$24
Groliers Encyclopedia ... \$19 Linux (4 CD Set) \$35
I Can Spell \$15 Interactive Chinese \$28
Just Grandma & Me \$23 Kings Quest VI/VII\$24/33
Lawnmower Man\$18 Mayo Bodyland \$24
Mayo Health Clinic \$24 Mayo Pharmacist \$24
Merry Christmas \$15 Midi Music Shop\$29
MS Flight Simulator . \$75 Myst\$45
PhoneBook/FaxBook . \$35/29 World Atlas 4 Pack \$28

Network Your Computer (Share data and printer?)

Network Operating:
Network 3.12/4.1 (5) \$849 LAN Server 4.0 \$849
Lantastic 6.0 (1) \$112 WFW 3.11 \$199
Windows 95\$150 Windows NTserver 3.51 ...\$879
SmartPrinter starter Kit.\$199 Personal Netware 1.0 (1) ..\$149

Network Hardware:

Intel EtherExpress Pro ... \$159 3COM Ethernet III, TP...\$129
SMC EL 16T ultra \$129 PCMCIA Ethernet \$239
Pocket LAN adaptor \$259 8 Port Hub 10BaseT..... \$199
UPS 400VA \$205 Exabyte 2/4GB... \$1299/1399
Terminator/T-connector/Connector \$5 each
Cable 25'/50'/100'/500' (BNC or TB)..... \$15/25/35/120

Service Contract available, check our FaxBack & BBS

Shopping On-Line

http://mindlink.net/maple

Maple Oak Computer Solutions Inc.

314 W. Pender St. Suite 202, Vancouver, BC V6B 1T1
Tel: 681-3770/3792 FaxBack: (604) 681-7771
Fax: (604) 681-3739 E-mail: Maple@mindlink.bc.ca
BBS: (604) 681-4408 Internet: http://mindlink.net/maple

Some chips return only one bit of data on one pin while other chips return 4 bits of data on 4 pins.

Ordinary PC memory uses Dynamic Random Access Memory or DRAM. Typically, such memory is rated to respond in 80 to 70 nanoseconds. A smaller amount of memory may be added to the system as an "external" or

"second level" cache. This is made of faster Static RAM or SRAM. External cache is nice if you get it, but it may not be worth the trouble to purchase and install it yourself.

DRAM is typically packaged on small boards called SIMMs. Each memory location holds 8 bits of data (a byte), but the memory also maintains an

extra bit to serve as a parity error check. Memory does not fail often, but when there is a problem it generally affects all the data in a chip. The parity check detects the error. The system will crash, but the diagnostic error at power up indicates which SIMM needs to be replaced. (Check the amount of RAM checked to determine which chip has failed).

There are two types of SIMMs in wide use. An older, shorter SIMM has 30 connectors that transfer information between it and the main board. This type of SIMM transfers one byte of data (plus parity) in each memory cycle. Since a 486 chip needs to transfer 4 bytes of data, the 30 pin SIMMs are installed in groups of 4. The 30 pin SIMMs are typically sold with either 4Mb or 8Mb of memory. A group of four 1M SIMMs provides Mb of memory, while a group of four Mb SIMMs provides a 16Mb upgrade.

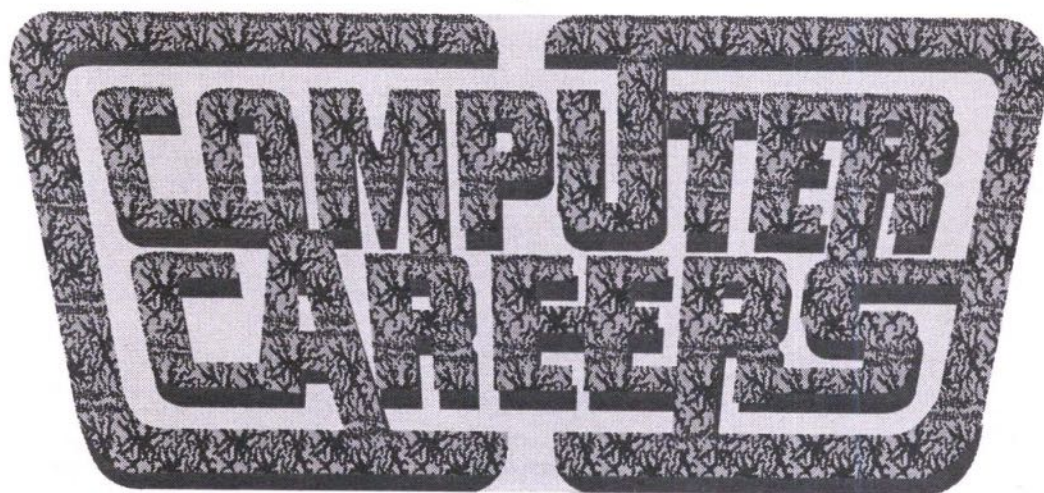
New machines today use a longer SIMM with 72 connectors. This allows the SIMM to transfer a full 4 bytes of data (plus parity) in each memory cycle. On a 486 computer, the 72 pin SIMM can be installed individually. Generally these SIMMs are sold with 4, 8, or 16Mb of memory. Some of the 72 pins indicate to the main board how much memory is on the SIMM and what speed (80, 70, 60 ns) the memory operates at. The 72 pin SIMM is becoming standard because it can be installed individually and is more foolproof.

The more powerful systems (Pentium, PowerPC, DEC Alpha) can fetch 64 bits (8 bytes) of data from memory at a time. On the high end 486 server models, the memory is "interleaved" and operates on a 64 bit bus. In either case, a high-end system may require 72 pin SIMMs installed two or four at a time. There is a new SIMM standard calling for a 168 pin configuration that supports a 64 bit data path. It is found in some models of the PowerPC but is not expected to make an impact on the marketplace for a few years yet. (Don't hold me to that!).

There are two ways to build a 1Mb SIMM using the older 30 pin technology. The SIMM has to deliver 8 bits of data and one parity bit. The simplest version uses 9 chips, each holding a megabit of data, each delivering one bit of data on demand through one pin. However, as Mb chips became more common, some vendors created a three-chip SIMM by packaging two Mb chips (each delivering 4 bits through 4 pins) and a 1Mb chip (delivering 1 bit through 1 pin). The general recommendation is to use only one type of SIMM in a system.

The cheapest system units and a number of the replacement motherboards have memory slots that use 30 pin SIMMs. This is becoming an obsolete technology and should be avoided where possible. The mainstream new machined from major vendors all

MAZED?

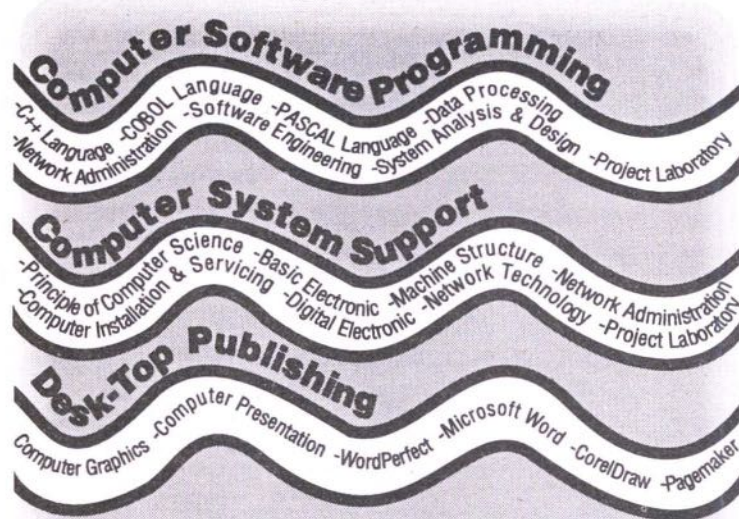


THC
EDUCATION

LEADS YOU TO CAREER ACHIEVEMENTS

Computer novices attention please: Even a genius needs professional training—properly. Self-study sometimes put you in a maze.

The right
PATH
For your
Academic
Advancement
& Career
Development



Programmer Analyst
Certificate: 40 Credits
Diploma: 84 Credits

Computer Technician
Certificate: 40 Credits
Diploma: 84 Credits

Desk-Top Publishing Specialist
Certificate: 20 Credits

Programs Start in January '96

TSING HUA COLLEGE
OF BRITISH COLUMBIA, CANADA

For more information please call
298-1908



PROFESSION **T**RAINING
HIGHER EDUCATION
CAREER DEVELOPMENT
1801 Willingdon Ave., Burnaby, B.C.
(Across Brentwood Mall)

Creative Computer Systems

102-1965 West 4th Avenue, Vancouver, B.C.

Tel: (604) 732-6313
FAX: (604) 732-8337

Creative Package

486DX Processor-based Systems

DX2-66	\$1375
DX4-100	\$1436
DX4-120	\$1460

Intel Pentium Processor-based System

P-75 Triton	\$1634
P-90 Triton	\$1764
P-100 Triton	\$1816
P-120 Triton	\$1939
P-133 Triton	\$2209

8MB 70ns RAM
730 MB EIDE hard drive
3.5" 1.44 MB floppy disk drive
PCI EIDE 2X 16550 UART
Trident PCI 9440 graphics card
with 1 MB DARM
14" 1024x768 N.L. LR. 0.28dp
14" Mini-tower case with 200W
Mouse
101 Enhanced keyboard
Option: Multimedia System 330 only
4X EIDE CD-ROM drive
Sound blaster 16 bit
Stereo Speakers

Multimedia Package

486DX Processor-based Systems

DX2-66	\$2073
DX4-100	\$2149
DX4-120	\$2174

Intel Pentium Processor-based System

P-75 Triton	\$2315
P-90 Triton	\$2445
P-100 Triton	\$2497
P-120 Triton	\$2628
P-133 Triton	\$2890

8MB 70ns RAM
840 MB EIDE hard drive
3.5" 1.44 MB floppy disk drive
PCI EIDE 2X 16550 UART
Diamond Stealth 64 Video 64 bit
with 1 MB DARM
15" 1024x768 N.L. LR. 0.28dp
19" Mini-tower case with 200W
Mouse
101 Enhanced keyboard
4X EIDE CD ROM drive
Soundblaster 16 bit
Stereo speakers

Motherboard & RAM

AMD486DX2-66/100 PCI board w/ 256kb cache	\$220/283
AMD486DX2-66/100 VL board w/256kb cache	\$210/273
Pentium 75/100 Triton PCI board	\$510/710
4MB/8MB/16MB 72 pin SIMM	call

HDD & Tape Drive

1.44 3.5 Floppy Drive	\$42
Seagate 540MB/850MB	\$225/275
Conner 850MB/1.2GB	\$265/345
Quantum 540MB/1.0GB	\$230/320
WD 630MB/850MB	\$250/285
WD 1.2MB/1.6GB	\$395/550
Colorado Tape Dr 800MB/1.4G INT	\$235/355

VIDEO CARD

ATI VLB/PCI Mach 64D 1/2MB	\$179/239
ATI VLB/PCI Mach 64V 2/4MB	\$355/595
Cirrus Logic PCI 5434 1MB/S3 1MB	\$135/115
Diamond PCI STL64D Video 1/2MB	\$185/245
Trident PCI 9440 1MB	\$125

KEYBOARDS/MICE/CASES

Proxcel/Seijin/Mitsumi 101	\$28
Fujitsu 4870/4700	\$48/59
Focus 2001/7000 Trackball	\$48/77
Logitech 2B Mouse/MouseMan	\$35/48
14"/19"/24" Mini-tower case 200W	\$75/99/125

MONITOR

ADI 15"4GP/17" 5EP N.I. L.R.	\$529/878
CompuParther 14"/15" 28 Ni LR	\$325/445
Daytek 15" Supper Fine .25	\$445/468
SONY 15" Supper Fine .25	\$875
SONY 17" SF/17" SE	\$1230/1540

MULTIMEDIA

SoundBlaster 16 Basic/ASP	\$98/128
SoundBlaster 16 SCSI-2/ASP	\$185/268
Creative Multimedia Home 4X	\$548
Panasonic CR562B 2X/4X Int	\$79/199
NEC 6xi MultiSpin CDR-501/502 Int	\$585/659
SONY 76E 4X EIDE/76S SCSI	\$255/345
Toshiba 5302B 4x EIDE Int	\$205

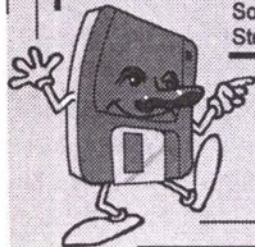
MODEM

GVC 14.4 Fax/Voice Int/Ext	\$130/150
GVC 28.8 Fax V.34 Int/Ext	\$239/269
USR 14.4V Si V4.2bis Fax Int/Ext	\$79/99
USR 28.8V.34 Fax Int/Ext	\$250/278

Store Hours:

Mon. - Fri.	09:30am - 6:30pm
Sat.	10:00am - 5:00pm
Sun.	Closed

- * Two Year Parts and Service Warranty (Systems Only)
 - * All Prices Reflect 2% Cash Discount
 - * Prices Subject To Change Without Prior Notice
- All brand names and trademarks are the property of their respective owners.



use the 72 pin SIMM technology and this should be preferred.

What to do with your old 30 pin Memory

There is a 30-pin to 72-pin adapter that you can purchase to save you from having to throw away or sell your existing 30-pin memory at a substantial loss. If your dealer does not carry these, you can contact me a 604-521-6831 and I'll help you out. (Please be very careful with the type of converter that you purchase. Some of these are not very good).

Hurry Up and Wait

Data travels between the CPU and memory on parallel wires called a "bus." These wires contain the clock signal, address bits, data bits, and control signals. One of the control signals is called ready. The CPU is the fastest device on the main board of the computer. It has to be slowed down to match the memory and I/O device speed.

Every bus operation begins with a new clock tick. If the CPU needs data from memory, it places the address of the data on the bus. The 386 or 486 bus is not designed to respond in the same cycle that the address is presented. The

minimum bus operation takes two cycles. At the end of the second cycle the CPU checks the value of the ready wire. If the data was found in 25 ns SRAM cache, then ready will be active and the CPU reads the data. Otherwise, ready is inactive and the CPU waits for another clock cycle.

Each clock period that ends with the ready wire inactive is called a wait state. No matter what the vendor says, there is no such thing as a high speed machine with 0 wait states. The processor speed is too fast and DRAM is too slow for that to be possible. Wait states are also introduced by I/O devices as they need more time to process data.

A Cold Shower

Turn on a shower first thing in the morning. The water comes out cold. The shower has to run for a minute before it gets hot. Just how long the delay is depends on pipe diameter and distance the pipe is between the water heater and the bathroom.

The same problem occurs in electricity and is called capacitance. Turn on a radio, and it may take a second before any music comes out. The capacitance of a PC main board is tiny compared to

a radio, but it is significant when time is measured in nanoseconds (ns).

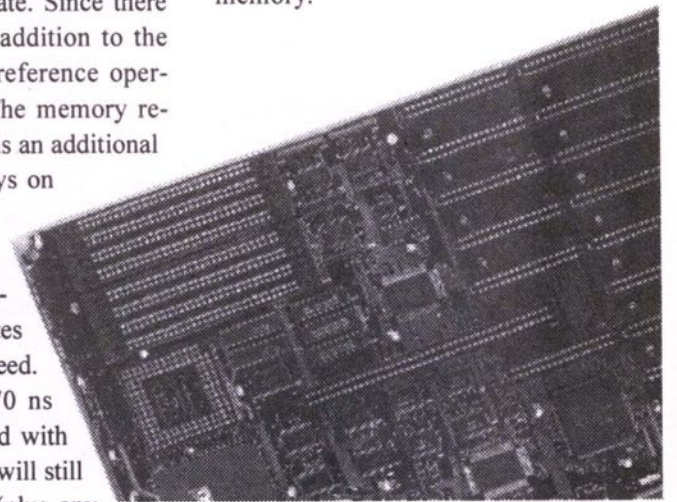
The Intel and AMD CPU chip introduces a minimum 3 ns delay between the clock tick and the time that the address reliably leaves the CPU. The main board adds several nanoseconds while the address flows through the circuits to the last memory socket. There will be a similar delay when the data value travels back from the memory chip to the CPU. The engineers who design the main board take this into account and program wait states to handle the worst case.

The engineers build a main board rated for a 33 MHz (30 ns) clock, 70 ns memory, and one wait state. Since there are two clock cycles in addition to the wait state, the memory reference operates in 3x30 or 90 ns. The memory responds in 70 ns, so there is an additional 20 ns for the signal delays on the main board.

Most main boards are designed with a specific number of wait states for a specific memory speed. A board designed for 70 ns memory can be populated with 60 ns memory instead. It will still wait 70 ns for the data (plus any

overhead for the signals to travel out and back).

Neither the memory nor the CPU know how long the main board delays will be. The water heater does not determine how long it will take for the hot water to reach the bathroom. Installing a larger water heater, or turning up the thermostat on the current heater, will not reduce the amount of time it takes to run the cold water out of the pipes. Using better memory does not change the main board design. The speed by which the CPU references memory is determined by the clock rate and the number of wait states inserted reading or writing memory.



Cache in your Chips

About thirty years ago, IBM demonstrated that a mainframe computer could run faster if it had "cachememory." The cache is a high speed memory area that keeps a copy of the most recently used data in main memory. Most programs go back and re-execute the same instructions, or update

the same numbers, and the cache provides better performance.

A modern PC has two levels of cache. The 486 family was designed with 8K of memory inside the CPU itself. This is the best type of cache, because the circuits inside the chip can operate much faster than any external data reference. When adding two numbers together, the

486 can perform the operation in two internal clock cycles (which would correspond to one external clock cycle on a DX2 that "doubles" the main board clock) provided that both numbers are already inside the CPU chip.

An external or "second level" cache can be installed with SRAM chips on the main board. SRAM runs faster than

DRAM, but it still is slower than the first level cache in the CPU. The Add operation requires two internal clock cycles, and two additional external clock cycles if the data is in the second level cache.

Because it is relatively expensive for the CPU to set up an external memory reference, and because there is a high probability that the next number or instruction needed by the program will be the one immediately following the last number or instruction, the 486 is designed to fetch data from memory in a "burst". The internal cache is arranged in units of 16 bytes. Each unit is called a "line" of cache. Whenever an instruction references data that is not in the internal cache, the chip generates a memory reference for the four bytes of needed data, and then fetches the remaining 12 bytes of a 16 byte memory area.

When data is found in the SRAM second level cache, there is one external memory cycle to set up the transfer, then the four bytes needed for the current instruction come in on the second external clock cycle, and the remaining twelve bytes come in the next three clock ticks. After five main board cycles, all 16 bytes have been moved into the chip. Without the burst, an old 386 would have used eight clock ticks to fetch the same data, since each individual four byte unit would have required one cycle to set up the transfer and one cycle to receive the data.

If the data is not in the SRAM second level cache, then it must be fetched from ordinary DRAM memory. DRAM typically requires at least 70 ns for each response, and this is two or three external clock cycles. So fetching the data from DRAM involves "wait" states where the CPU has to stop and wait for the memory to respond.

Interleave

In the same period that processor cycle time has dropped from 100 to 20 ns, memory speed has only dropped from 100 to 50 ns. With a 10 ns processor cycle time possible, memory response becomes a problem. Mainframe designers addressed this problem twenty-five years ago by "interleaving" memory.

A 486 chip has 32 data pins. It references memory four bytes at a time. Most main boards simply connect the CPU pins directly to the memory sockets. But the main board can achieve higher performance if it creates a wider path to memory. Interleaved memory has two sets of sockets and two 32-bit

(Continued on page 64)

VANCOUVER FILM SCHOOL

Winter 1996 Schedule

For Early Enrollment Call Today!

Part-time classes commence January 29

PART-TIME CLASSES

FILM

- Introduction to Filmmaking
- The Assistant Director
- Script Supervision & Continuity level I
- Script Supervision & Continuity level II
- Cinematography & Lighting
- Art Direction
- Directing for Film
- Make-up for Film & TV
- Make-up Special Effects
- Wardrobe/Costume Design
- Low Budget Filmmaking/A Producer's Workshop
- Editing for Film
- Film Marketing & Distribution
- Scriptwriting: The Basic Tools
- Scriptwriting Workshop
- Music Video Production

MULTIMEDIA

- Alias: An Introduction to Alias Animator
- Introduction to CD-ROM Authoring
- Introduction to 2D & 3D Computer Animation
- Introduction to MIDI
- The Personal Computer Recording Studio
- Computer Paint/Fractal Painter plus Photoshop
- The Internet for Mac users
- The Internet for Windows users
- Basic HTML
- Advanced HTML

ANIMATION

- Classical Animation: Art & Technique Level I
- Classical Animation Level II
- Life Drawing Skills: Male/Female Nudes

SPECIAL CLASSES

- Stunt Training—An Introduction
- An Introduction to Training & Handling Wild & Exotic Animals for Film & TV
- Firearms in Motion Pictures
- Special Effects for Film & Television
- Traffic Control - DGC Requirement

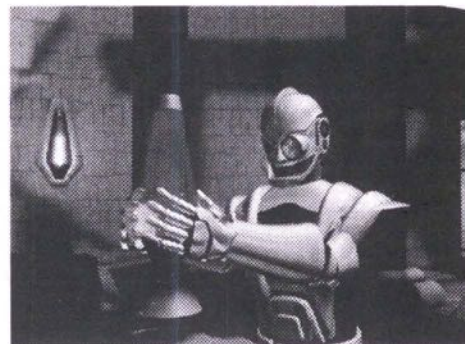
ACTING

- Film Acting Technique
- Scene Study for Film Actors
- Director/Actors Lab—A One-day Workshop
- Voice Work for Film Actors—a 3-day Workshop
- Film Acting for Children
- Film Acting for Teens

NOTE: For all Children & Teen acting inquiries, call: 669-4885

WORKSHOPS

- Movie Magic: Budgeting/Scheduling/Scriptor
- Digital Video Editing: Avid Media Suite Pro
- Graphics & The Internet
- Searching the Internet



ALIAS at VANCOUVER FILM SCHOOL

Alias Research Inc., the world's leading special effects software company, has designated Vancouver Film School an official Alias Training Centre to meet the global demand for computer animators skilled in Alias software applications. Within this partnership a high-end computer animation program has been created that delivers more access to SGI platforms (360 hours); the best possible workstation/student ratio (1:1), in a stunning production environment, at a cost without rival (\$16.60 per hour).

HARD TO BELIEVE?

CALL. COMPARE. NOTHING DOES.

FULL-TIME PROGRAMS

VFS Offers intensive, 1 year immersion programs

VFS offers one-year intensive production programs that are equivalent or superior to the best post-graduate programs in North America. The difference is our programs take less time...a lot less. Full-time Direct Education programs in:

Film Production, Multimedia, 3D Animation & Digital Effects, Classical Animation, and Acting for Film & Television.

INFORMATION SEMINARS

To attend a free information seminar on Film Production, Multimedia, 3D Animation & Digital Effects, Classical Animation, and Acting for Film & Television, call: 685-6869.

FINANCIAL ASSISTANCE AVAILABLE

Vancouver Film School
#400 - 1168 Hamilton Street,
Vancouver, British Columbia
Canada V6B 2S2

E-mail: part-time@multimedia.edu

Call: 685-8689

New Heights for On-screen Gambling

— Review of *Celebrity Poker*

David Anderson

Card games on the computer can be very addictive. I remember getting wrapped up in a simple Blackjack game on an Apple IIe many years ago. The fascinating thing about virtual gambling is the way the computer program can actually teach you how to play a card game. Since the money means nothing, you can do things you would never do in real life.

Celebrity Poker invites you to join a friendly game of poker with three Hollywood personalities. Jonathan Frakes, Joe Piscopo, and Morgan Fairchild are bright, perky, engaging, and full of encouragement as they welcome you to their card table. There is even a menu command that compels Joe Piscopo to tell jokes, if you need some instant humor during the game. If you just sit there, they will start to needle you to play. There is a limit to their patience, even though they are only video images. They do have other things to do, it seems.

Celebrity Poker contains a rotating list of common poker games. You can choose the game you like to play, or let the dealer choose his or her favorite. You have chips to ante and to bet with, and your cards appear in front of you at the bottom of the screen. The game controls are very intuitive, and the manual is only required if you need help understanding the various high-card and low-card versions of poker. The single games are designed to prepare you for a poker tournament, in which your results are totalled for a series of poker games, with big winnings for tournament champions.

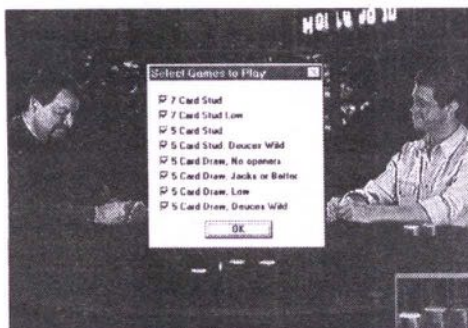
Technically, this CD-ROM was a pleasure to use. It snooped through my poor old 486 DX33, and told me to use the low-grade video option, because of my slow IDE bus and my ancient Panasonic double-speed CD-ROM drive. But even with slow equipment, the game played flawlessly. I did not get to see the higher-

performance options, called "simultaneous video". On my machine, Morgan, Joe, and Jonathan took turns talking and moving. This was sufficient, however, to enjoy the action, and participate fully. When

I cranked up the game settings, the video action left trails all across the screen, so I didn't force the issue any further. As someone once said, you get what you get.

The nice thing about this CD-ROM is the way the video and sound does not get in the way of the main activity, which is betting, bluffing, raising, calling, and winning. It makes a perfect gift for any poker-playing CD-ROM user on your list. In spite of the rather lightweight Hollywood personalities, the game plays very well, teaches a ton about poker, and lets you spend endless amounts of money trying to be the best poker player around.

A great program for a rainy night! □



Product information:

New World Computing
PO Box 4302
Hollywood, CA
90078-4302 USA

About the author: *David Anderson* is Vancouver elementary teacher, parent of two children. He can be reached by email: computer_player@mindlink.bc.ca

DO YOU WANT
TO FLY?
THEN DISCOVER...
ANIMATION!

• CREATE YOUR OWN CLASSICAL ANIMATION
OR DIGITAL FILM ☆

• VIDEO CONFERENCE WITH THE GREAT
☆ DISNEY ANIMATION MASTERS ☆

• FULL ANIMATION PRODUCTION SERVICES...
SEND IN YOUR SCRIPT, STORY, STORYBOARD, OR ART

(SELECT PROJECT FINANCING AVAILABLE)
VANCOUVER ANIMATION ☆
PH: (604) 681-4024 FAX: 681-4026

Ever thought
of getting

488-1900

TECHNOLOGY AND TRAINING IS POWER AT Your Finger Tips



CDIS

CENTER FOR DIGITAL IMAGING AND SOUND
A division of
INSTITUTE OF COMMUNICATION ARTS

3248 Beta Avenue, Burnaby, BC
V5G 4K4

CDIS@MINDLINK.BC.CA
http://www.ica-cdis.com/cdis

Tel: 604-298-5400

Toll Free: 1-800-661-1885

Fax: 604-298-5403

MULTIMEDIA

- ◆ Digital Publishing
- ◆ Interactive Multimedia
- ◆ World Wide Web
- ◆ Virtual Reality

SOUND PRODUCTION

- ◆ Music Production
- ◆ Digital Audio Post
- ◆ Midi Composition
- ◆ Audio for Video
- ◆ Music Management

COMPUTER GRAPHICS

- ◆ Alias Power Animator
- ◆ Softimage Extreme
- ◆ 3D Studio
- ◆ Lightwave 3D
- ◆ Form Z
- ◆ Strata 3D
- ◆ Photoshop

VIDEO / FILM

- ◆ Digital Video
- ◆ Motion Picture Production
- ◆ Film Editing
- ◆ Video Production & Editing

NEW MULTI-MILLION DOLLAR TRAINING CENTER

- ◆ Training Excellence Since 1979
- ◆ Semesters Commence
Oct/Feb/June
- ◆ Student Financing
- ◆ Full or Part-Time

JUST CALL
298-5400
CENTER FOR DIGITAL
IMAGING AND SOUND

Database Developments

John Hamm

Several readers have suggested that we take a look at some of the "Easy to Use" databases. Databases that you don't have to be a programmer to use.

There are several products competing for market share in this niche. Lotus Approach, Alpha Five and Claris FileMaker Pro are three of the leaders. In this issue we will take a look at FileMaker Pro 2.1 - it's so easy you don't even have to read the manual.

FileMaker Pro

FileMaker was one of the first database products designed specifically for the Macintosh. After several successful years in the Macintosh world Claris Corporation introduced a PC product nearly identical to the Mac version. This Macintosh heritage is apparent in the user-interface and we are looking forward to the Windows 95 version which should bring the look and feel closer to the Windows standard.

Ease of Use

Navigation through the file is accomplished by clicking on an icon in the upper left corner representing a book. The top page of the book represents the previous record while the bottom represents the next. A "bookmark" sticks out from the right of the icon. If you drag this bookmark up or down you can quickly move through your data file even if there are thousands of entries.

Fields - such as name, address and phone number - are quickly and easily set up by simply choosing "Define

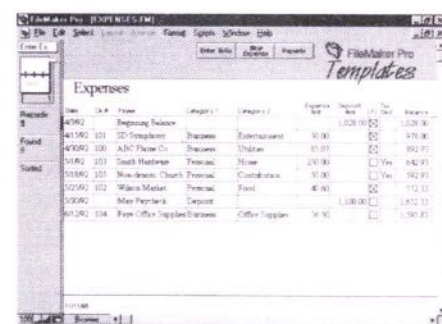
Fields..." from the "Select" menu. You type the name of your field and click one of the seven data types. The data types are text, number, date, time, picture or sound, calculation and summary. No knowledge of special numeric types is required.

Once you have defined your fields another click on the "Select" menu allows you to choose "Layout". Various tools allow you to design one or more forms with which to enter or display your information.

Pop-up menus, checkboxes and buttons can be added to your form to aid data entry. A full suite of drawing tools enables you to add design and colour.

Finding a specific record is also easy to do. Choose "Find" from the "Select" menu. A blank version of your form is presented on the screen. Simply type in the information you are looking for and click the [Find] button. For instance, if you type a phone number in the Phone field and click [Find] your form will almost instantly be filled with all the information you have entered about the person or company at that number.

You can limit your records to a smaller set, such as only companies from Seattle, by typing "Seattle" in the City field and clicking [Find]. Now



NANTRON SYSTEMS LTD.

MULTIMEDIA SYSTEM SPECIAL P5-75 \$1998 486DX2-80 \$1738

- | | | |
|--------------------------------|-----------------------------|---------------------------|
| GA P5/486 PCI/ISA GREEN M/B | 101 ENHANCED KEYBOARD | UPGRADE TO: |
| 3PCI/4ISA BUS, 72PIN SIMM, LBA | 3B HI-RES MOUSE W/PAD | 1.2GB HDD \$62 |
| 256KB CACHE EXP'L TO 512KB | 19" MID TOWER CASE WITH LED | 15" MONITOR \$118 |
| PB CACHE FOR P5 +\$138 | 14.4 INT. FAX MODEM | 28.8 FAX MODEM \$112 |
| 8MB RAM EXP'L TO 192/128MB | 4X INT. EIDE CDROM DRIVE | 14.4/28.8 VOICE \$18/118 |
| EDO RAM FOR P5 +\$68 | 16 BIT STEREO SOUND CARD | MS HOME '95 CD PACK \$45 |
| 850MB EIDE HARD DRIVE | STEREO SPEAKERS W/VOL CTRL | WIN 95 FULL VERSION \$138 |
| 1.44MB FLOPPY DRIVE | EXTERNAL MICROPHONE | CANON BJC-4000 PRT \$389 |
| 1MB SVGA CARD EXP'L TO 2MB | 14 MPC CDROM TITLES | 4X HP CD WRITER \$1399 |
| ON BD EIDE/EIO (2X16550+EPP) | ENCYCLOPEDIA '95 | |
| PS2/BUS MOUSE PORT FOR P5 | ANIMALS '95 | CHANGE TO: |
| 14" .28 NI GR LR SVGA MONITOR | HOT GAMES | 2X CDROM DRIVE -\$100 |



PRICES SUBJECT TO CHANGE WITHOUT NOTICE
NOT ONLY AFFORDABLE AND HIGH QUALITY COMPUTERS,
WE OFFER YOU TOTAL SOLUTIONS!

- | | |
|---------------|------------------------------------|
| P5-75 \$1758 | GA TRITON HIGH QUALITY M/B |
| P5-90 \$1878 | 3PCI, 4ISA, ZIF SOCKET, 72PIN SIMM |
| P5-100 \$1928 | 256KB CACHE EXP'L TO 512KB |
| P5-120 \$2028 | (PIPELINE BRUSH CACHE +\$138) |
| P5-133 \$2248 | 8MB RAM EXP'L TO 192MB |
| | (EDO MEMORY +\$68) |
| | 850MB EIDE HARD DRIVE |
| | 1.44MB FLOPPY DRIVE |
| | EIDE/FDD/EIO W/2S(16550) 1P(EPP) |
| | PCI BUS 1MB VIDEO CARD |
| | 15" .28 NI LR FLAT GR MONITOR |
| | 101 ENH. K/B W/3B MOUSE & PAD |
| | 19" DUAL CSA MID TOWER CASE |
| | CX586-100 ODP only \$1648 |

HOT PARTS SELECTIONS

- | | |
|--|---|
| 4/8/16MB SIMM RAM.....\$169/339/605 | M/B P5 TRITON 75/90/100...\$468/588/638 |
| 1.2/1.44MB FLOPPY DRIVE.....\$65/39 | MONITOR 28 NI LR GR 14"15".....\$308/418 |
| 850M/1.2G/1.6GB HDD.....\$278/338/449 | MONITOR FLAT DIGI 17" 28/26.....\$548/948 |
| CD DRIVE 2X/4X/6X.....\$85/188/699 | MS/LOGITECH K9 MOUSE.....\$35/32/15 |
| TAPE DRIVE 420/800MB.....\$199/279 | PROXEL 101 ENH K/B.....\$28 |
| DOS 6.2 & WINDOWS 3.11WG.....\$128 | FUJITSU 4700/4870/8720 K/B.....\$58/42/33 |
| WINDOWS 95 FULL VERSION.....\$138 | CASE 13"/19"/FULL.....\$68/88/118 |
| MS HOME 7 TITLES (ENCARTA).....\$98 | MICROPHONE/EARPHONE.....\$12/8 |
| 14 CDROM TITLES (GROLER).....\$49 | SOUND BLASTER 16/ASP.....\$98/168 |
| 17 CDROM TITLES (COMPTON).....\$59 | SOUND BLASTER AWE32V.....\$239 |
| 40W/120W SPEAKERS (AC).....\$28/99 | PROMOVIE STUDIO.....\$298 |
| 14.4 FAX MODEM INT/EXT.....\$69/99 | |
| 28.8 USR INT. V34 FAX MODEM.....\$89 | |
| 28.8 FAX MODEM INT/EXT.....\$189/239 | |
| VLB IDE+IO/EIDE+EIO CARD.....\$28/48 | |
| PCI/VLB VIDEO CARD 1/2MB.....\$98/168 | |
| ATI M64 TURBO 4MB VRAM.....\$688 | |
| ATI M32 1MB DRAM.....\$148 | |
| ATI M64 2MB D/VRAM.....\$248/348 | |
| DIAMOND ST64 2MB D/VRAM.....\$225/348 | |
| M/B 486DX/256 80/100/120.....\$208/258/298 | |
| M/B CX586/256 100.....\$358 | |



BIG BIG BIG OF SELECTIONS ON
HOT HOT HOT CDROM TITLES!!!

1745 Nanaimo Street (Near 1st Ave)
Vancouver, B.C. V5N 5C1
Tel:(604)253-1588 Fax:(604)253-8681

when you click on the next or previous page of the book icon only Seattle companies will be displayed.

Mailing Labels

Mailing labels are a snap to produce with **FileMaker Pro**.

In Layout mode you select "New Layout..." from the "Edit" menu. Here you are presented with a dialog box containing several options including Labels. When you click the Labels radio button the Label Setup dialog box is displayed. Here you can choose from a list of more than 50 standard **Avery** label sizes to find the exact size and shape of label you prefer.

Next a field list appears from which you select the fields you wish to appear on your labels.

When field selection is complete a click of the "OK" button lands you in layout mode again. This time a representation of your label is on the screen. You may move fields around and add decorative touches just as you would when creating a data entry from.

When you are satisfied with the appearance of your labels simply choose File/Print...

Ready-to-Run Applications

FileMaker Pro 2.1 Deluxe ships with over 20 ready-to-run applications. Some of these pre-designed solutions include:

A *Contact Manager* to keep track of existing and prospective clients.

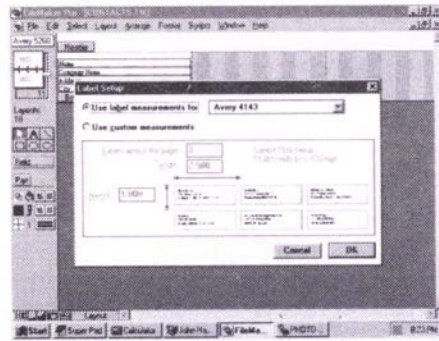
A *Lead Tracking Manager* which shares files with the Contact Manager. This allows you to follow up on all your calls.

The *Expense Manager* organizes and tracks all your expenses. You may not spend any less but you'll know where all the money's gone!

The *Invoice System* allows you to track sales while producing professional-looking invoices.

Some of the other ready-to-run applications are:

- Project Manager
- To Do List
- Home Budgets
- Personnel Records
- Job Search Database
- Buy vs. Lease Analysis
- Asset Management
- Employee Leave Form
- Job Application Form
- Home Inventory
- Party/Wedding Planner



These applications are easy to modify to suit your own particular needs and provide excellent examples and ideas you can use to produce your own professional-looking forms and applications.

Cross-Platform Issues

FileMaker Pro is exceptionally well-suited to offices which have both Macs and PC's. Mac users needing to use a PC will feel at home with FileMaker and will pick up some of the quirks of the Windows world.

FileMaker Pro imports and exports dBASE, Lotus, Paradox, ASCII text files and several other file formats. This is handy when a FileMaker user wants to work with data created by another database application, perhaps to create a mailing list or a summary report. Unfortunately, live FileMaker data cannot be shared by other database products. Changes made to a record in FileMaker are not reflected in the original data file.

FileMaker data files may be shared across a network with other FileMaker Pro users using either PC's or Macs.

The ability to share data between a Mac and a PC using a common interface is significant in a mixed-platform environment.

Requirements

Minimum requirements are a 286-based processor (386SX or greater recommended), three megabytes of RAM (4MB recommended), Microsoft Windows 3.0 or higher, a VGA video adapter, a hard disk and one floppy drive.

Conclusion

FileMaker Pro 2.1 is an easy-to-use database manager ideally suited to home or home-office work. It greatly simplifies the process of collecting, finding and displaying information.

Since this current version of FileMaker will run quite well on a 386 with 4 megs of RAM it is a good choice for users who are not planning on upgrading their hardware in the near future. □

About the author: **John Hamm** is a consultant and database application developer at Eastside DataGraphics, Tel: (604) 255-9559, email: John_Hamm@MindLink.bc.ca

RECALL
Hypermedia Group
Incorporated

"QUALITY & INTEGRATION"



Smart and
Friendly

RICOH

2X, 4X, 6X CD Writers. Disc Changers, & Jukeboxes!
"CALL FOR PRICING" "LEASING AVAILABLE...O.A.C"

TEST BEFORE YOU INVEST!!

"Rent a 2X CD-Writer for 1 week for \$500.00"**

Recall will come to your place of business, install multi write software on your host system**, and provide you with a 2X recorder for use for 1 week. If you should chose to purchase any Recall recorder after the 1 week trial we will credit your rental charge towards the purchase of a new CD-Recorder!!!!

* Some restrictions will apply. Offer limited to the Greater Vancouver area. CD-R Media not included.
** Minimum system requirements: MAC or Windows: 486, 8Mb Ram, 1.0 Gigabyte H/D, External SCSI adapter port for Windows, Apple 7.1 minimum operating system.

VANCOUVER
(604)737-4325
(604)737-0636 FAX
76031.1754@compuserve.com

VICTORIA
(604)384-7672
PHONE/FAX
randym@islandnet.com

OPENING SOON!
EDMONTON & CALGARY

GET THE NET!

488-1900

ADULT CD-ROM

Interactive Games • Interactive Movies • Photo Cd's • For Video CD • CDI • 3DO

 NightLife Reg \$69.95 Sale \$49.95	 VIRTUAL VIXENS Reg \$59.95 Sale \$44.95	 NEURODANCER Reg \$59.95 Sale \$44.95
--	--	---

Reg \$69.95 Sale \$49.95

OVER **25% OFF**

FREE!

16 Page
ADULT CATALOGUE
CALL NOW

1-800-ROM-CITY
1-800-766-2489

VIRTUALLY YOURS 1	Reg \$59.95 Sale \$44.95
VIRTUALLY YOURS 2	Reg \$69.95 Sale \$49.95
SAMURAI INTERACTIVE	Reg \$69.95 Sale \$49.95
TOKYO GLAMOUR GIRLS	Reg \$49.95 Sale \$36.95
SPACE SIRENS 1	Reg \$69.95 Sale \$49.95
MIND TEAZZER 1	Reg \$59.95 Sale \$44.95
MIND TEAZZER 2	Reg \$69.95 Sale \$49.95
PENTHOUSE VOL 2	Reg \$69.95 Sale \$49.95

BRAND NEW!
SPACE SIRENS 2
SATISFY OR DIE!
\$20.00 OFF
REG \$79.95
ORDER NOW!

EROTIC GAMES
Interactive multiple games
on CD-ROM.
Choose & play many
top hits all on one CD.
ONLY \$14.95



**BUY BOTH CD'S
FOR ONLY
\$19.95**



DIGITAL EROTICA 3
Touch the TFUI
(Touch-Feel-User-Interface)
and experience the ultimate in
erotic interaction!
ONLY \$14.95

ORDER FORM

Name _____
Address _____
City _____ TEL# _____
Prov _____ P/C _____
You must be 18 or over to order. Signature must accompany
order form. By signing I declare that I am 18 or over.
Signature _____

FREE SHIPPING!

VISA • Master Card
Chq • Money Order
Send To:
AD RomCity
136 Wings Rd. Unit 8
Woodbridge • Ont • L4L 6C3
Orders processed immediately.

TITLE _____ \$ _____
[] ADULT CATALOGUE Free
GST 7% \$ _____
PST (Ont only) 8% \$ _____
TOTAL \$ _____

[] VISA [] M/Card CARD# _____

Exp _____ Auth _____

Autodesk 3D Studio Student Version 4.0 \$775

Upgrade from version 3 to version 4.0 \$395
3D Studio Version 2.01a students only \$280
3D Studio Version 4.0 full commercial
With upgrade to version 5 MAX...CALL



2 & 3D Animation & Modeling
Full Package with all Manuals,
Disks, CD & Hardware Lock

PC to TV ENCODER HIGH QUALITY

FLICKER-FREE & 16.7 Million Colours
Notebook, laptop, desktop with VGA
output to TV, Colour smear filter,
Supports composite and S-Video output
All cables 640 x 480 (NTSC) Flicker-
Free image in 16.7 million

Autodesk Animator Studio
24 bit colour, AVI, sound and a full suite of
2D animation tools **\$395**

Complete Pentium & DEC Alpha Systems
Call for Best prices!

IC Technology
3D Studio
Animation
Targa+ Cards
PC Video
Multimedia
Video Grab
DPS-PVR/PAR
(604)681-7057
1134 Homer St. Vancouver B.C.

DIGITAL VIDEO & ANIMATION

DPS PERCEPTION Outstanding PROFESSIONAL
VIDEO quality from DPS
VIDEO RECORDER (makers of the PAR). SCSI-2,
PCI bus, Component, s-Video & Betacam @ 60 fields/sec,
720x480 resolution. Real-time capture and playback - Video &
Animation.

PC to TV Encoder
ENCODER - Highest Quality True colour, Full
Remote Control, No TSR to 600 x 800 res. **\$495**

PC Video Editing Boards and Systems
We sell and support a complete line of Video capture,
playback and animation products for multimedia and
professional applications. Talk to us before you buy!

**MIRO FAST VIDEO Targa2000 DPS-PAR ADDA
RAZOR PREMIERE ANIMATION MASTER TRUESPACE**

**FAST FPS 60 Edit quality
video on your PC \$1395**
ASK FOR SPECIAL STUDENT PRICES

Rocking & Rolling with your PC

— The next level for air guitarists

Alan Zisman

Product Information

Virtual Music Entertainment, Inc.
19A Crosby Drive, Suite 300
Bedford, MA
01730-1419 USA
Tel: 617-271-0900
800-872-7827
List price: \$99.95 (US)

Please put up your hands if you
ever fantasized playing loud elec-
tric guitar in a rock band. Perhaps
played air guitar riffs when you thought
no one was looking.

Okay, you can put down your hands
now. The Virtual Guitar system is for you.

No musical knowledge needed...
just some natural rhythm, and the itch
to make it as a guitar god. Oh yeah, you
have to be prepared to practice.

For about \$100,
you get the Virtual
Guitar itself, and the
software— a CD-
ROM game, "Wel-
come to West Feed-
back". Two other CD
disks are available, to
use with the Virtual
Guitar.

The guitar itself is
a flashy, purple electric guitar... about 7/
8 the size of a real guitar, with a solid
feel. Unlike a real guitar, there are no
frets, and only a single string, strung
back and forth to create the illusion of
six strings... you see, you don't actually
play notes. And that's why you need no
musical background. Instead, you use it
to strum along with pre-recorded music
on the CD... trying to hit the strings when
you're supposed to, as a good rhythm
guitar player. You don't have to know
when— you'll see on screen when
you're supposed to play, and will get
immediate on-screen feedback to see
how you're doing. Like any good gui-
tarist, though, you can use electronic
effects... the guitar has built-in volume,
distortion, and feedback controls... as
well, you can control your screen's
mouse cursor, right from the guitar. Since
it plugs into your serial port, it's easy to
attach and doesn't require opening up
your computer or adding a card.

Like any guitarist wannabe, you
start out practicing alone in your room...
well, not quite alone— you're helped by
Lloyd, who once was a guitar player, but
got sucked into his amp, while trying to
create the ultimate sound. He'll give you
tips along the way. So practice... when
you get good enough, you can try to join
the garage band: Mark, the drummer/
dude, Sheila, the sexy singer, and the
rest. They'll tell you when you're not up
to the band's level, and praise you when
your chops improve. Eventually, having
impressed local agent No-Cheat Charlie,
the band gets to move out of the garage
and to its first gig, at the Dead Inn.
There's a vocal audience, who will ap-
plaud or pan you, as your playing de-
serves.

Finally, you can challenge Chops
Felton, the reigning guitar king in the
Riff Challenge... one on one.

The visuals are quite good, and
pretty realistic looking. Some are obvi-
ously digital
video, but these
are cleanly inte-
grated with the
backdrops.

Your CD
comes with half a
dozen songs—
generic bar-band
rock that you'll be
playing along

with. The songs were originally recorded
by bands such as Motley Crue and the
Allman Brothers, but here are presented
by competent studio musicians and vo-
calists... waiting for your rhythm guitar
part. All in all, visually and musically, it
gives a good impression of playing in a
band— even if you have no musical
background at all. But to move through
the levels of the game, you have to be
prepared to practice!

The system requires a 4 meg 486
with a CD-ROM and sound card, and an
available serial port, running Windows
and takes about 10 megs on your hard
drive. Mac and Sega-CD versions are
expected shortly.

Any air guitar player will find this
one a lot of fun... every one I know has
wanted to take a turn playing it. □

About the author: *Alan Zisman* is a
teacher and an associate editor of *Com-
puter Player*, he can be reached at e-mail
at alan_zisman@computer-player.com



GAMES FOR YOUR CHRISTMAS STOCKING

Matthew Durand

In the 1st Degree

Publisher: **Broderbund Software**

San Francisco, hometown of Dirty Harry and The Grateful Dead, is a city with a pretty decent murder rate. It is the perfect setting for Broderbund's first entertainment release since *Myst*. The game puts you, state prosecutor Sterling Granger, to the task of putting a killer behind bars.

In the 1st is a full-motion video extravaganza, what the public likes to call "interactive entertainment." I like to call it, "Interactive Matlock" and it is almost as boring as the Mayberry lawyer himself.

This isn't a game, it's a product made for a new type of computer user, one that thinks "multimedia" and "cruisin' the 'net'" are cool but playing actual entertaining computer games is for computer nerds. This game is best left non-interactive.

The video's smooth, the sound is sweet, but the poor design leaves me pulling my hair out. This game is decided by conversation choices and to win you have to make the right choices. Sounds simple but sometimes, seemingly

innocent choices end up making your witnesses storm out of the room in an uncooperative fury. Sometimes the choices seem so poor that no one but the designers would pick them, but these answers produce better results. Another problem with this game is it's really short, and the game must be played through 2-3 times just to figure out all the right questions to ask to obtain a guilty verdict. The problem is it's the same story each time and it gets boring really fast.

The verdict is, if you've got money to burn don't let me discourage you from buying this game, but for most people the price tag's too much for this title unworthy of the Broderbund label. (I wonder if they've ever heard of replay value)...

Star Trek the Next Generation: A Final Unity

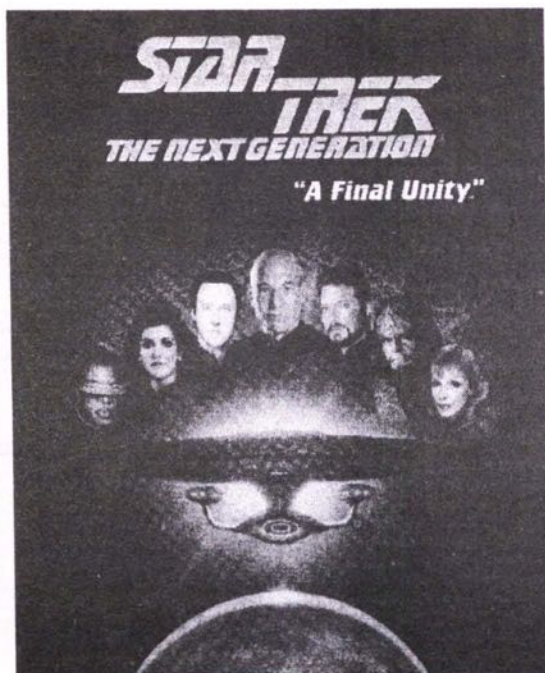
Publisher: **Spectrum Holobyte**

"...Its mission, to boldly go where no game has gone before....", a decent goal but the quest for the perfect adventure game doesn't end here, unfortunately.

A Final Unity is Spectrum Holobyte's first venture into the adventure game genre. And they've really gone all the way with this product, it has all the SVGA graphics and digital sound any cold blooded Romulan could wish for. All of the major characters from the television show have lent their efforts, and have actually given some pretty decent performances. It accurately conjures up all of the details of the "trekkie" universe, right down to the starbase on Kevlon 5. The most important thing though is that the gameplay is there.

Your goal: to locate the dreaded Unity Device, an ancient weapon of a derelict race with

(Continued on page 57)



MICROSEA System Corp.

美高善電腦系統

Standard Pentium computer System:

- Acer-Triton Chipset 75-133MHz PCI/ISA Mainboard
 - Intel P5 CPU with Cooling fan
 - Built-in PCI/IDE & Fast I/O Controller
 - 256K Cache on Board
 - **8MB** 72pin SIMM (Option: **EDO RAM**)
 - Panasonic 1.44 (3.5") Floppy Drive
 - Quantum **850MB** EIDE Hard Drive
 - PCI VGA Display w/1M Accelerator
 - Mid Tower Case w/CSA Power Supply
 - Enhanced 101 Keyboard (Chinese/US)
 - Acer View 14" .28mm SVGA Monitor
 - Microsoft Serial Mouse w/Mouse Pad
 - Windows 95 (Diskette/CD) Full Version
- (48Hrs burn-in test, 2 year parts & labor warranty)

**FREE
Joystick**

P5-75	....	\$1,888
P5-90	....	\$1,988
P5-100	....	\$2,088
P5-120	....	\$2,188
P5-133	....	\$2,388

- * Contract Service: System Maintenance, Network Service, Programming, POS
- * Government & Corporate Purchase Orders Are Welcome
- * Mail Order & Fax Order Are Accepted

Sales • Service • Repairs • Upgrade • Networking • Software
WE OFFER YOU TOTAL SOLUTIONS & AFTER SALES SERVICES!

110-4940 No. 3 Road
Richmond, B.C. V6X 3A5
Alderbridge Place
Tel: (604) 273-9233
Fax: (604) 273-9203

私人及商用電腦

售後服務

保證滿意

X'mas Special!!!

CD-Pad 14-18 Titles	\$39
MS DOS 6.22 & Windows 3.11	\$99
Acer 4X CD ROM	\$169
Diamond ST-64 2M DRam PCI	\$199
Epson Stylus IIS Color Jet Printer	\$429

Limited Quantity!! Please don't miss!!!

Multimedia Special

- * Panasonic 2X / Acer 4X CD-ROM
- * Sound Blaster 16 + Amplified Speakers
- * CD Bundle: MS Encarta 95, MS Works & Money, Hanna Barbara Sound Bit, & CD Sample

2X at \$229 4X at \$339

Hard Drive Specials

Quantum 850MB EIDE	\$269
Quantum 1.0GB EIDE	\$299
Quantum 1.2GB EIDE	\$369
WD 1.6GB EIDE	\$499

**with No
Hourly charges?**

488-1900

Three Programs and a Freebie Enhance Win95

Information

Product: Name-IT

Publisher: Vertisoft
4 Embarcadero Center, Suite 3470
San Francisco, CA 94111 USA
803-295-5875/803-269-4719 (fax)
List price: \$29 (US)

Product: Quick View Plus

Publisher: Inso Corporation
401 North wabash, Suite 600
Chicago, IL 60611 USA
312-329-0700/312-670-0820 (fax)
List price: approx. \$50 (US)

Product: Arcada Backup-95

Publisher: Arcada Software Inc.
708 Fiero Commerce Park, Suite 5
San Luis Obispo, CA 93401 USA
805-782-4400/805-544-9209 (fax)
List price: \$99 (US)

standard of 8-letter file names (with no spaces, please). It allows for file names as long as 256 characters (even the Mac only allows 32 characters)—I've seen student "essays" that were shorter than that.

Unfortunately, this is only supported with new, 32-bit, Win95 compatible software. Your existing Windows programs are still only aware of the old, 8 letter version... and so a word processor file named "Letter to the Editor about Taxes" will appear as LETTER~1.DOC if you're using last year's Word 6.0.

Symantec Norton Navigator includes a feature allowing old Windows programs to use long file names—but it only works with programs using Windows long file names, and a few others. It doesn't support the popular Microsoft Office programs, for example.

Vertisoft's Name-IT is a simple program that does this single thing—but does it well. When running, it adds long file name support to virtually all old Windows programs. If the programs use the Windows 3 common dialogue boxes for Open and Save As, it replaces them with their Windows 95 equivalents, complete with long file support. If your program uses custom dialogue boxes for these functions, it adds a "Long File Name" button onto the dialogue box—pressing that opens the Windows 95 dialogue, again allowing long names.

It worked with all the old software on my system—allowing me to use this useful (and long overdue) Win95 feature, without having to update all my software to new versions. (Note how-

Alan Zisman

Windows 95 is a big step forward in features and usability over the various versions of Windows 3.1 that have pretty much defined personal computing for the first half of the '90s. It has a friendlier interface, long file names, more-or-less plug and play hardware support, and is more powerful and less crashable than its predecessor. (Or as cynics are saying "Windows 95 sucks less").

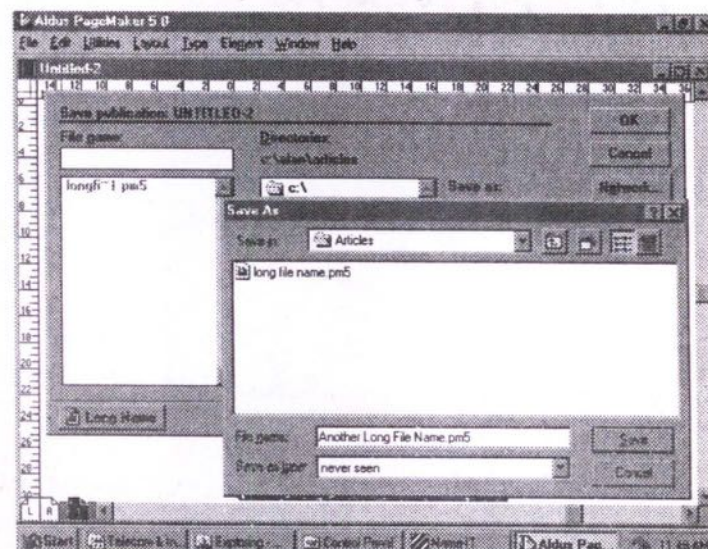
Its interface is good enough that it's taken most of the steam out of the formerly thriving industry creating software to enhance Win 3's anemic Program Manager. Symantec Software, for example, is targeting its Win95-compatible Norton Navigator as something to 'enhance' Windows 95's features, rather than to replace Windows features, as it did with the Windows 3 Norton and PC Tool's Desktop programs.

Better as Windows 95 is, there remains room for enhancements, and a number of companies are producing products to fill in some of Windows 95's missing pieces.

Vertisoft's Name-IT

Take long file names, for instance.

Windows 95 finally breaks with the 1981 DOS



COMPUTER BARGAINS

2 Speed Multimedia Kit \$199

5" 1/4 High Density Disk, Box of 10 \$2.95

4 MB SIMM Strip \$167

upgrades galore

Vancouver's coolest computer store

hackers dream store

6000 sq ft of unbelievable deals

WE BUY & SELL USED MEMORY

COMPUTER CLEARANCE WAREHOUSE
QUALITY PRE-OWNED COMPUTERS & PARTS

Phone: (604) 879-7776
250 Kingsway, Vancouver B.C.
Fax: (604) 879-7966

Vancouver's used computer superstore

ever, that this will NOT allow you to safely use older utilities such as defragmenters/optimizers or backup programs, without risking damage to the long file name structures). My only wish is that the program could be run needing its icon taking up valuable TaskBar real estate.

Quick View Plus

One of the new skills for Win95 user's is to right-click on everything... New computer users may find this easier than upgraders from Windows 3, for whom the right mouse button often seemed as little used as an appendix.

Right-clicking most things brings up a pop-up menu, with items customized to the selected object. Right-click on some data files in Explorer (or My Computer), and one of the menu items says "Quick View". Choosing this brings up a handy view of the contents of the file, without needing to waste time bringing up the application that made the file. This is especially handy if you don't actually own the application that created the file, or if you want to check a bunch of documents to see if they're deletable. (If you installed Win 95 from floppies, Quick View wasn't installed— it's on the CD version only).

Symantec thought highly enough of this feature, that even though it's previous Win 3 products, like PC Tools File Manager, included a comprehensive set of document viewers, it relies on Win95's Quick View to provide the same feature in the new Norton Navigator.

The only problem is that Quick View only provides viewers for a handful of file formats.

Inso Corporation, who actually provided Quick View to Microsoft, in the past has been known for the excellent Outside-In utility, which provides a huge range of file converters. They are marketing a replacement for Quick View, called (surprise!) Quick View Plus.

Instead of the 30 viewers included with Win95, QV-Plus lets you view over

200 document formats— virtually all of the common DOS and Windows word processing, spreadsheet, database, and graphics formats, and even several of the more common Mac formats.

Replacing Quick View in the right-click menu, QV Plus does a good job of showing fonts, line spacing, even, in many cases, embedded graphics. It will even let you view the contents of compressed ZIP files.

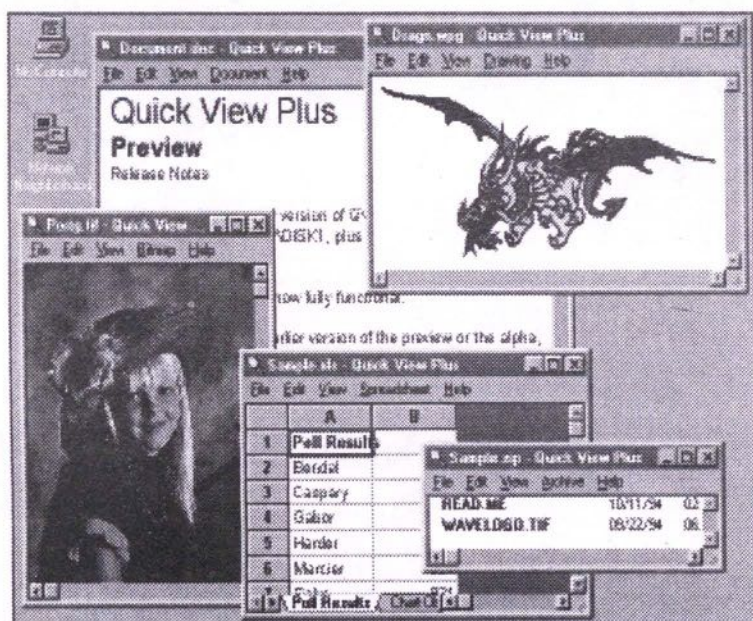
It can be used with e-mail in Microsoft Exchange— e-mail that now can contain graphics or other binary attachments. Or it can be used together with the Start Menu's FIND command... either to find a file, or even to find a file containing a particular text string. Once you've viewed the file, if you want, you can print, directly from the Quick View Plus window— even if you don't have the original application that created the file. If your viewed file contains an OLE object's icon, that too can be viewed.

Graphics files can be cropped or resized, and the clipboard can be used to copy and paste all or part of a document into a Windows application. Individual files within a ZIP archive can be viewed, copied, or moved— all without opening the archive.

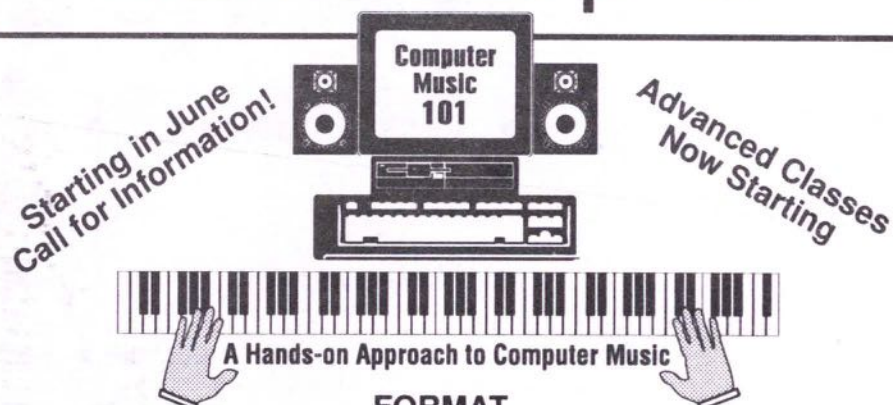
Get used to right-clicking— it's one of Windows 95's handiest features. And if you find the range of viewers that ship with Windows 95 limiting, take a look at Quick View Plus.

Arcade Backup

One of the big areas of complaint from Win95 upgraders has been backup. Hopefully, we all know about the importance of maintaining current backups for protection against viruses, power failures, theft, and other computer disasters.



Make Music with Your Computer



A Hands-on Approach to Computer Music

FORMAT

4 week course

1 1/2 hours per week

8 people per class

1 computer music station per person

Qualified Instructors

Introduction \$99.00 Advanced \$129

TOPICS COVERED

MIDI Basics • Music Sequencing

929 Granville St.
685-8471 or 688-8929

TOM LEE
Music
MUSIC SUPERSTORE

We did.

488-1900

Compare



To Any Other Legal/Business Software Package Available...

There Is No Comparison!

SAVE HUNDREDS MAYBE THOUSANDS IN PROFESSIONAL FEES

A Canadian Product Developed In Canada By Canadians (*Not A Modified American Product!*)

Over 150 Specialized And Legally Binding Agreements

13 Sections Covering Virtually Everything to Setup & Manage Your Business Correctly:

- Document Setup • New Business • Business Services • Employment • Buying • Selling • Collections
- Credit/Debit • Corporate Management • Commercial Leases • Assignments • Personal Section •
- (Real Estate, Wills, Powers Of Attorney, Trusts, Etc.) • Over 20 Business Forms •

Compare Our Features

- Registration Service To Keep You Up-To-Date With Any Changes In The Law-We Are Constantly Monitoring The Package For You (Anyone Else Offer You This Service?)
- Complete Comprehensive Notes From Lawyers, Accountants & Business People To Assist You In Preparing Your Documents Correctly
- 800 Number For Technical Support
- Works With Your Word Processor (No New Program To Learn!) Allows You To Completely Edit And Customize Every Document For Your Specific Needs

"And Now The Best Part....."
" Check Out Our New Prices"

DeskTop Lawyer	\$99.95
• Consulting	\$79.95
• Home Office	\$24.95
• Canadian Wills	\$39.95
• Franchising	\$495.95

Check Out The Other Products In Our

Full Business Series:

- Consulting... *Developed Specifically For Consultants*
- Home Office... *To Manage Your Home Based Business Efficiently*
- Canadian Wills... *Prepare Your Own Will, Power Of Attorney, Etc*
- Franchising ... *All The Legals To Franchise Your Business* (Maybe You Can't Check These Out Because We Don't Know Of Any Other Specialized Packages)

For More Information:

Proform Software International

Phone 1.800.661.1961 Fax 613.739.4303



**Attention Retailer...Contact Us For
Information On Our Retail Package!**

Older backup programs, like other disk utilities, however, are incompatible with Windows 95's long file name structure. Win95 includes usable alternatives for other disk utilities— ScanDisk and DeFrag both work well, and should be used in place of older DOS or Windows equivalents.

There is a backup program included with Windows 95, as well, but it seems like the weakest of the bunch— written by tape drive manufacturer, Colorado, it provides support for some Colorado drive models, but does not support most of the wide range of tape backup units available. No SCSI support for example. (Of course there's no support for floppy backups... in the era of common 500 meg- 1 gig hard drives I shudder to think of the number of floppy disks needed for a backup).

Arcada are backup specialists. Their earlier products have been licensed to other utilities companies, appearing under well-regarded names such as Norton Backup. Under their own name, they have marketed higher-end products aimed at network managers, and alternative operating systems such as NT.

Arcada Backup for Windows 95 claims to support all tape drives commercially available today... the wide range of DC2000 (QIC 80) tapes, the new high-capacity Travan tapes, SCSI tapes, parallel port units, and more. It uses Win95's multi-tasking and multi-threading abilities to speed up backup, even while the computer is being used for other tasks.

An included Backup Wizard walks the user through the setup, allowing customization. Backups can be automated, allowing them to take place late at night, for example. As a true Win95 program, it safely supports the long file name structures. As well, special thought has gone into dealing with the Windows 95 System Registry.

The Registry is the central repository for data about the hardware, software, and users on a particular machine. It can pose problems with backup and restore processes... if new hardware or software has been added since backing up, restoring the backup could result in a loss of the new settings.

Arcada-95 handles this by treating the Registry files differently than other data files— these aren't simply restored, instead, they are compared, line by line, with the existing file— minimizing potential danger. Specific choices can be saved, allowing users to save a set of parameters for a minimal daily backup,

and a more comprehensive weekly backup, for example.

This program is a must for anyone who values their data or their computer's setup under Windows 95.

Power Toys— the Freebie from Microsoft

Not to be left out, even Microsoft is enhancing the basic Win95 product. We've previously review Microsoft Plus!— the \$49 add-in. But a number of the Windows 95 interface programmers have been working, on their own time, and created a collection of little utilities that Microsoft left out. These are being distributed for free, by Microsoft, and other on-line sources, as PowerToys. (Try <http://www.microsoft.com> if you have Internet access).

PowerToys have been updated every few weeks, but as of right now, includes a number of useful enhancements. Several features are added to that handy right-click pop-up menu... for example, you can now view inside those big, compressed *.CAB files that came on your Win95 CD or diskettes, and easily find a particular file. Even nicer is the addition to the SEND TO sub-menu— by default, right-clicking on a file gets you a SEND TO choice, allowing you to send a file (or files) to the A: drive, or to a few programs. (Win 95 HINT— copy shortcuts of anything to the \WINDOWS\SEND TO folder, and they will appear on the SEND TO list... add printers, fax, applications... whatever you want). PowerToys adds a SEND TO...ANY FOLDER item, making it the easiest way to copy or move files in Explorer.

There are some nice enhancements to the audio-CD player. New to PowerToys, is perhaps the most powerful feature of all— TweakUI. This installs as a Control Panel icon, and allows the user a huge range of customization features... removal of cluttering desktop icons such as Network Neighborhood or the InBox, for example, or an easy way to get rid of the Cloud screen at boot up.

Lots of features, and the price is right. Anyone who wants more power over the Win95 environment should take the time to track down and install a copy of this one. □

About the author: *Alan Zisman* is a teacher and an associate editor of *Computer Player*, he can be reached by e-mail alan_zisman@computer-player.com

32 CD-ROM TITLES OF IBM COMPATIBLE SOFTWARE

NEW

◆ Each CD-ROM contains 4 High Quality, Registered, Copyrighted Software Programs

◆ CODY™ - Custom Graphical User Interface for easy installation and setup

\$19.95 + tax two for **\$29.95** + tax

EDUCATIONAL		ENTERTAINMENT	
204	KIDS EDUTAINMENT	207	MINDWURX 1
217	MATH & SCIENCE FUN	208	COLLECTOR'S COLLECTION
218	THE TALKING TEACHER	209	SWIMWURX
221	PRESCHOOL EDUTAINMENT	216	TRIVIAWURX 1
225	WORD WURX 1	219	PUZZLEWURX
230	WORD WURX 2	224	HOME WURX 2
		226	SPORTS WURX
GAMES		HOME & OFFICE	
201	GAME WURX 1	205	DAILY INSPIRATIONS
202	GAME WURX 2	206	MAKE'N LIFE EASY
203	SHUFFLE & ROLL	210	EASYWURX 1
215	3D GAME WURX	211	GOLDEN OFFICE SUITE
222	GAME WURX 3	212	MONEY MATTERS
223	GAME WURX 4	213	HOME WURX
228	GAME WURX 5	214	EASYWURX 2
229	GAME WURX 6	220	PERSONAL COLLECTION
		227	ASL PUBLISHER
		231	HOME WURD 3
		232	HOME OFFICE WURX

Distributed by: Independent Power Corp.
also available at: Value Computer Systems
NetWork Control Computers
Super Data Technologies

Tel: 604-931-7521, Fax: 604-931-7523
403 W. Broadway, Vancouver
924 W. Broadway, Vancouver
1237 W. Broadway, Vancouver

Canada's Largest Internet Provider

INTERNET DIRECT

Flat Rate Internet Access.

\$19.95*

per month.

No Hourly Charges
Over 800 Lines
Free Software (couriered)

GET THE NET!

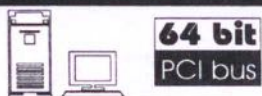
Call: 488-1900 in Vancouver
or 1-800-987-8884

*some restrictions apply

HOLLY COMPUTER CENTER

PENTIUM® processor power

INTEL Pentium® processor
PCI Green New Bios motherboard
256K High Speed cache
8MB 72pin SIMM RAM
1.08GB Enhanced IDE Hard Drive
2.88MB Floppy Drive
PCI Video Card 1MB exp. 2MB
I/O with 2S, 1P, 1G Ports
14" non-interlaced SVGA monitor .28dp
Enhanced 101 keyboard
Tower Case w/230W power supply
FREE: 3 button mouse & mouse pad



64 bit
PCI bus

UPGRADE TO

16MB / 32MB 72pin SIMM RAM
+ \$345 / + \$865
ATI M64 2MB DRAM SVGA
+ \$120
KDS 15" / 17" N-I, L-R
+ \$140 / + \$550
120/133/150MHz Pentium® processor
+ \$PLEASE CALL

INCLUDE

**SONY 2.88MB
Floppy Drive**

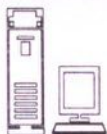
New 4X Density

100MHz Pentium® processor \$1950
incl. PCI / 8MB RAM / 1.08GB HDD / 2.88MB FDD

Fujita 486 System

ASSEMBLED IN CANADA

VESA Green New Bios Main Board
256K Fast cache
4MB SIMM RAM
560MB Enhanced IDE Fast Hard drive
1.44MB Floppy Drive
VESA Video Card 1MB
VESA IDE Controller Card w/2S, 1P, 1G Ports
14" non-interlaced SVGA monitor .28dp
Enhanced 101 keyboard
Tower Case w/230W power supply
FREE: 3 button mouse
FREE: mouse pad
FREE: 10 pcs. (1 box) 1.44MB Floppy Disk



**Unbeatable
Price!**

UPGRADE TO

8MB / 16MB SIMM RAM
+ \$180 / + \$460
850MB EIDE hard drive
+ \$55
PCI motherboard + PCI Video Card
+ \$80

64 bit
PCI bus

DX2-66MHz \$1099
DX4-100MHz \$1179

FREE TRAINING!

All systems come
with (1) 80min. long
Computer Beginner Video Tape
Hurry in!!!!!!!

All systems come with 2 years parts & labour
carry-in warranty

Come to visit us, we do speak Cantonese & Mandarin
Our Address is:
#9-4751 Shell Road, Richmond
Tel: 279-2580 / Fax: 279-2581
Mon.-Fri. 10:00-6:00 / Sat. 11:00-4:00

BlowOUT Special!

486DX2-66/DX4-100MHz (VLB M/B+CPU).....\$199/259
TRITON + 100MHz Pentium® processor (M/B+CPU)..\$769
560MB EIDE Hard Drive \$225
850MB EIDE Hard Drive \$265
1.08GB EIDE Hard Drive \$329
HARD DRIVE
FREE INSTALLATION LABOUR*

Green Notestar Notebook

Energy saving with sleep mode
Upgradeable CPU
4MB RAM Upgradeable to 32MB
340MB Hard Drive upgrade with ease
10" Big Screen with good contrast
Removeable hard drive for security
1MB VESA Local bus SVGA card with high color
Ext. port for mouse, keyboard, monitor
PCMCIA slot for modem, sound card
Free quick charger
Free deluxe case
Extra long-life battery NIMH

**NOTEBOOK
Special
from \$1995**

DX2-66MHz (MONO/DUAL).... \$1995/\$2495
DX2-66MHz (ACTIVE MATRIX).....\$3795
upgrade to 8MB/16MB RAM.....+\$340/\$1020
upgrade to 850MB.....+\$585
Add PCMCIA 14.4 Fax modem.....+\$195

RAMania & PARTS

4MB/8MB/16MB RAM
\$180/\$340/\$635
14.4K int. FAX/VOICE modem
\$78
28.8K V.34 int. FAX modem
\$178
2.88MB Sony Quad Den. Floppy Drive
\$128 **NEW**

unbeatable! NOTEBOOK Sale

FREE
FAX modem installed
TRACKBALL MOUSE

COMPAQ / IBM
486/4MB/1.25MB HDD/1.44FDD
\$1448

MULTiMEDia

2X CD-ROM + S.B. (OEM)
\$189
4X CD-ROM + SB16 (OEM)
\$299

**FREE
Speakers!**

5 Microsoft CD titles incl. Encarta'95 only +\$99

PRINTER BlowOut!

CANON BJ-100 / BJC-4000 color bubble jet
\$268 / \$448
HP 540C colour bubble jet
\$428
CANON LB4 TRUE Laser Printer
\$569
**SATURDAY Special
CRASH OUT**
Used Parts start from \$2

* Due to inspection & not including accessory parts
- All prices are subject to change without prior notice
- All product names, logos, trademarks & registered trademarks
are properties of their respective owner
- All prices are cash COD; Credit card add 3%
- Government and Corporate Purchase Orders Welcome
- Fax Orders and Bids are accepted

PRINTERS

CANON RE6 Copier Reduction & more.....\$999
HP 5P 2MB laser printer.....\$1250
HP 5MP laser printer.....\$1475
HP 660C color bubble jet.....\$599
HP 850C color bubble jet.....\$799

100MHz Pentium® processor + PCI motherboard

\$699 DEALERS or WHOLESALERS only!

QUICKTEL USA 28.8 Fax Modem\$229
Creative Lab SB16 MCD.....\$125
VL 32 Bit-ide Yo\$25
10 Super CD Package\$68

TOP LINK

Fastest Mac Clone Introduced

The new Power Computing Corp. has introduced what executives there say is the world's fastest Apple Macintosh clone computer.

From the firm's Palo Alto, California, headquarters, Susan Moran of the Reuter News Service notes that the new machines by Power Computing, the first company to begin making Mac clones, are built around a 150MHz PowerPC chip. Currently, the fastest PowerPCs operate at 132MHz.

Apple Licenses Newton Technology

Apple Computer Inc., looking to further expand its personal digital assistant (PDA) technology into specialized markets, is licensing its Newton platform to a pair of firms.

Schlumberger Electronic Transactions of Montrouge, France, and Digital Ocean of Lenexa, Kansas, will separately offer products based on Newton technology.

Schlumberger Electronic Transactions, a division of Schlumberger Ltd., plans to use the Newton technology in integrated "smart card" systems, which are designed to automate medical transactions.

Digital Ocean Inc., which specializes in wireless connectivity products, will combine the Newton platform and Global Positioning System (GPS) and wireless communications technologies into products for the manufacturing, transportation, health care and services industries.

"The support of our licensees is critical to the proliferation of the Newton platform as the standard for PDAs," says Sandy Bennett, acting vice president of Apple's Newton Systems Group. "With the addition of Digital Ocean and Schlumberger as Newton licensees, we expect to see an expansion in the range of innovative new solutions based on the Newton platform."



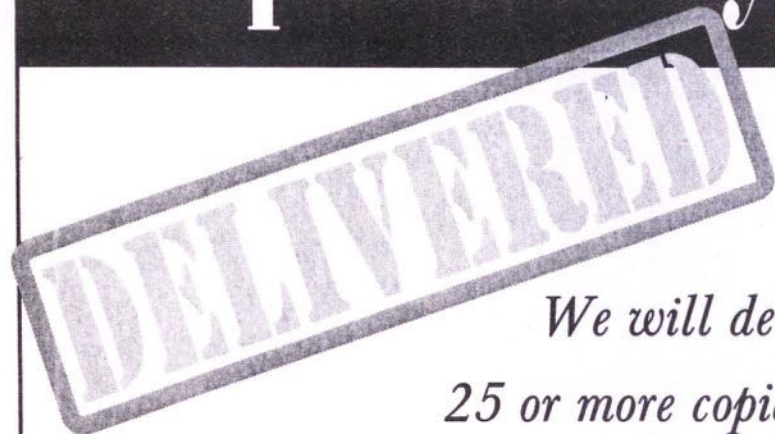
Crescent City Software

Specialists in software development for Macintosh systems

Relational Databases, Web Sites
System Design, Consulting & Training
Networking, Desktop Publishing
Word Processing, Spreadsheets

Phone: (604)739-1714 Fax: (604)739-1761
lklam@wis.net CompuServe: 71273,3475
http://aws2.cybernet.ca/crescent_city

Computer Player



*We will deliver
25 or more copies of
Computer Player for free
to your office or organization.
For more information please call
(604) 739-8266
or fax: (604) 739-3589*

Linoplus
We support Chinese
我們支援中文

Digital Pre-press Centre
From Scanning to Colour Proofing...

ZIP Drive rental, Ask for details.

Live Picture 2.0! Come see to believe!
Mac 和 PPC 版同步推出! 原價 US\$3995

US\$799.00 only!

歡迎來電垂詢及預約示範。

Wait no more!

Performance Comparison (PowerMac 6100)		
	Live Picture 2.0	PhotoShop 3.0
File size	69Mb	39Mb
Operations	Open, rotate 180°, blur, sharpen, flip, Convert to CMYK, Rotate -180°, resize image to 8.5"x11" 300dpi	
Turned RAM used	4min59sec (24.5Mb RAM)	8min20sec (100Mb RAM) 15min49sec (50Mb RAM) 18min15sec (24.5Mb RAM)

Short run — **colour**

Scanning...48 bit ...guaranteed 100% descreening ...

Linotronic Output...up to 360 lpi ...

Digital Prepress...trapping ...

Shortest turnaround time ... 4 hours ...

Color Separations ...Volume discount available

Call
604
879-6603

Mac Station

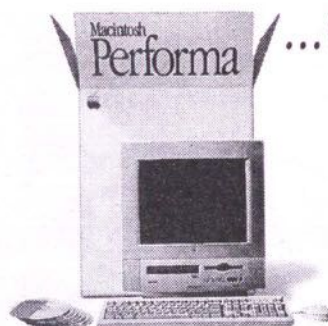
**No Payments/Interest on
Macintosh systems until May '96**

Sale prices on selected bundles

...Visit our store

...Order by phone

...Order by Internet



We maintain the best selection of Macintosh products in Greater Vancouver - see us for all your Christmas needs!



22353 Lougheed Highway, Maple Ridge
466-0190 / Fax: 466-0154
1-800-563-MACS
email: sales@macstation.com
World Wide Web: <http://www.macstation.com>



Authorized Dealer

The Lowdown on ISDN

Sean Elrington

As a byproduct of the explosion of interest in the Internet, millions of computer users are also starting to take an interest in their tele-

phone system. After all, even if you have a Pentium 100 and a 28.8 modem, your ability to enjoy cyberspace is totally dependent on the ability of your residential phone line to carry data. A poor quality phone line will make surfing the Web a painfully slow experience. Buy-

ing an expensive, high speed, dedicated data line has always been an option for businesses, however until the advent of ISDN there was little hope that the home user could ever really fly along the Information Highway.

To understand ISDN (Integrated Services Digital Network) we must understand the difference between an analog and digital telephone line. Analog telephones transmit electrical impulses

of varying intensity as a wave form - if you speak louder the signal is stronger. Digital systems carry zeros and ones and the intensity of the electrical signal does not change, because all of the information is contained in numbers represented by the zeros and ones.

When you connect to your Internet provider the sequence of events usually goes something like this:

1. Your computer emits a series of digital zeros and ones which then go to the modem.

2. The modem takes these binary digits and converts them into an analog wave form. The signal then goes to the local telephone company switch or 'central office' (CO). The switches are located around town and are really just very large computers.

3. At the switch, the data is turned again into digital form and transmitted at high speed to the CO nearest your Internet service provider (ISP).

4. The call is then converted back into analog form and transmitted to the ISP's modem pool.

5. It is then converted back into digital again so the ISP's computers can deal with the information.

As is to be expected, valuable data is corrupted during the numerous analog to digital conversions and must be resent - causing further delays.

The telephone line between your home and the nearest telephone switching station is called the 'local loop' and is typically analog. Starting in the late 1960s, telephone companies around the world changed their 'trunk lines' - lines between switches - into digital systems since they are capable of carrying more information more reliably than analog lines. However, the telephone companies have always balked at the cost of replacing literally millions of miles of local loop analog copper wire with special digital lines to every home.

ISDN extends the digital trunk lines between COs all the way to your home, eliminating the need for a modem. (It has always been possible to do this if one was willing to pay for an expensive, dedicated data line to be installed). ISDN allows you to, in effect, turn the existing analog lines already in your home into digital telephone lines through software installed on the nearest CO switch. Suddenly, your analog telephone line, which might on a good day actually run at 28,800 bps, now can send and receive data at 128,000 bps.

The cost for this service is between \$70 and \$100 per month per line depending on which service plan you decide to use. The cost of ISDN is coming down rapidly in the North America - in California, for example, you can get an ISDN line for about \$20 per month.

RES Online Internet Service Provider

No Start-up Fees
Low User to Line Ratio
Start-up Software Free
Personal Web Pages Free
Sun Sparc Station Stability
All 28.8K bps Dial-up Lines
Local MUD (res.com port 4000)
Online Already? Switch to us!
We save you time and money!

FULL T1 INTERNET ACCESS

\$19.95 /per month **Flat Rate***

\$17.95 /per month **For Students**

Commercial Web Pages \$50 per month



* 90min / call, unlimited calls

a division of
Incentive Technologies Inc.



Get Online Today!

Office: (604) 322-2194

Fax: (604) 322-0398

Dial-up: (604) 322-2176

E-Mail: sales@res.com

WWW: <http://www/res.com/>

ISDN uses each of the twisted pair of copper lines already in your home to send and receive 64,000 bps of data per line. If you 'bond' the two pairs together you get 128,000 bps. The two lines are called a BRI (Basic Rate Interface) or 2B+D. The 'B' are the bearer or data lines and the 'D' is a logical data line for carrying signaling information the phone system requires in order to set up a call. If your ISP supports ISDN they might have a number of BRI lines installed or they might have paid a lot of money for a PRI (Primary Rate Interface) which is 23 B channels and 1 D channel combined onto one physical phone line.

To terminate a BRI you require two devices - a Terminal Adapter (TA) and a Network Termination unit (NT1). The NT1 supplies power to the line and turns the two wire line into a four wire interface. The TA performs the bonding and other control functions on the line. The ISDN line comes into the NT1 and then goes to the TA and finally is connected either directly to your PC or to a router on a LAN. A PC card with a TA/NT1 costs about \$600, while a router which has a built in TA/NT1 can cost as little as \$1800. By itself an NT1 costs between \$250-\$350.

So why doesn't everyone use ISDN?

BCTel has been much slower to roll out ISDN service than other provinces.

BCTel's major shareholder is a large American company called GTE which makes telephone switches. Over the years, BCTel has bought a lot of these switches, which, unfortunately, do not support the software needed for ISDN. BCTel is slowly replacing these GTE GTD5 switches with ISDN capable switches from Northern Telecom and AT&T. The cost of replacing multimillion dollar switches means the deployment of ISDN is limited to urban areas. Downtown Vancouver and parts of Victoria, Kelowna and a few other cities already have ISDN access. The easiest way to see if you can get ISDN is simply to call the telephone company and ask them.

Your ability to receive ISDN depends on which switch you are using and the distance you are from it. Generally, to get it you must be within 3.5 miles of an ISDN switch, although the phone company is actively trying to extend that range.

If you thinking of using ISDN you should be aware that you might need to replace your old analog telephone and fax machines since they will not work on a digital line. One way around this problem is to look for a TA/NT1 with analog ports that you can use to support your existing equipment. Some vendors have introduced products which combine an ISDN TA/NT1 with a V.34 modem so that customers will have a smooth transition to ISDN when it becomes available in their area.

Some products, like Gandalf's 5242i Edge Router allow you to send a fax, take a voice call, and send and receive data all at the same time. If you doing a data transfer the router uses both 64K B channels, but when you pick up the phone, it allocates one data line to your voice call but keeps using the other 64K channel to send data. When you are finished your call it automatically starts sending data on the both lines again.

In my next article I will discuss Frame Relay and T1 lines. □

About the author:
Sean Elrington is the Marketing Manager of ZED Data Systems and can be reached at seane@zed.ca or http://www.zed.ca

FULLY LOADED WITH PROFESSIONAL SOFTWARE



Got a colour picture or image that would look great in your next presentation or report? Then get a StudioScan or StudioScan IIsi colour scanner from Agfa. Easy to set-up, even easier to use, it's the best way to add colour to your PC or Macintosh - and everything you create with it.

	StudioScan	StudioScan IIsi ^{NEW}
Optical resolution	300 x 600 ppi	400 x 800 ppi
Maximum resolution	2400 ppi	2400 ppi
Bit depth	24 bit	30 bit
Colour management	FotoTune (limited edition)	FotoTune Light
Scanning software	FotoSnap & FotoLook	FotoSnap & FotoLook
Image processing	PhotoShop (limited edition)	PhotoShop (full version)
OCR software	Omnipage Direct	Omnipage Direct
Suggested retail price	\$1,175	\$1,495

I'd like to know more, please send me information about ☐ StudioScan ☐ StudioScan IIsi

NAME _____

COMPANY _____ TITLE _____

ADDRESS _____ CITY _____

PROVINCE _____ POSTAL CODE _____

TELEPHONE _____ FAX _____

Agfa Division, Bayer Inc.
77 Belfield Road, Etobicoke, Ontario M9W 1G6
Tel: 416 241-1110 or 1-800-268-1331 ext. 4032
Fax: 416 241-5409 TCPL

AGFA 
The complete picture

ZED DATA
SYSTEMS
CORP.

THE NETWORK EXPERTS

(604) 473-9331

**Buying your first router?
We know routers.....**

**Telebit's LS ISDN router
1 BRI interface 1 a/sync port
1 Ethernet port 1 LocalTalk port
routes IP/IPX/AppleTalk**

\$1799

TELEBIT

*sales * rentals * service
ZED Data Systems
info@zed.ca http://www.zed.ca

Stuff for Christmas

Alan Zisman

Thinking of a gift for that special computer-user on your list? Computer users can be notoriously difficult to buy for—especially if you're not particularly computer-articulate yourself. Too many well-

intentioned computer-oriented gifts can end up being the high-tech equivalent of that tie or sweater destined for the back of the closet.

As with other gifts, the most appreciated are ones that are picked out with some thought to the needs, wants, and most of all, tastes of the recipient—too

many of us buy gifts that WE'D like, rather than ones that we know the recipient will like.

(You can always try this technique—ask them! Or get a gift certificate from the computer or software vendor of your choice).

If you don't know exactly what they want, make sure you know a few things about them and their computer first—how old are they? Are they game players? Do they use Macs? PCs? Amigas? OS/2? There are few things more embarrassing among computer-gift givers than giving software or a computer toy that will only run on a different platform than theirs!

Some gifts are universal—boxes of floppy disks, for example. A little bland, perhaps, but always useful... and virtually all computers can use the same 3 1/2" diskettes. Boxes of ten start under \$5. Maybe for a stocking stuffer? Take a look at their computer and workspace... is their mouse pad filthy? Covered with coffee stains? New ones start at under \$5, but for \$10-20 you can get an especially cute one (again—think of their tastes, not yours!) You can even get pads with a print of their favorite photo or graphic.

Buying software for someone else can be pretty tricky, unless they've dropped pretty specific hints about what they want ("Gee, Mom, that SimCity 2000 sure looks neat!"). Games, screen savers, sounds, and more can make nice gifts—but they're like buying music... there are lots of different tastes and desires. And as always, make sure you get something compatible with the computer platform—giving a Mac user a Windows program is sort of like giving a music fan an 8-track tape for their CD player.

You might want to get a subscription to a computer magazine as a gift... but don't just grab the first one on the shelf—like lots of other areas of publishing, computer periodicals have gotten increasingly focused... there are magazines for PC users, Mac users, etc., for beginners, for programmers, for the technically oriented, for game-players. I've counted half a dozen magazines

specializing on the Internet. Again, try and think of what how the person getting the gift uses her or his computer—especially when they're NOT at work. Then make sure they don't already get that magazine.

Recently, I went Christmas shopping at a computer superstore with Sammy Ho, Jim Edmonds, and my eleven year old, Joey. We were searching for gifts for various age ranges, and at a variety of prices—the sorts of things that could be fun, maybe a little quirky, that our favorite computer users might like, but often couldn't justify buying for themselves.

For The Kids

Software that is both fun and educational ('edutainment') is getting better and better... but most of it is now only available on CD-ROM. Make sure the child's computer has a CD-ROM drive before buying these. Classics include Broderbund's Living Books series, and Microsoft's Magic School Bus. For the very young, these have been joined by Fisher Price titles, such as Fisher Price's 123s. Prices range from \$45 to about \$70. For somewhat older kids, check out The Learning Company's offerings (also available on floppy disk), such as the various SuperSolvers programs (about \$50). All these programs list the suggested age range on the box—make sure you get something that's age appropriate. All these programs have both Mac and PC versions.

Small children often have problems with adult-sized mice, particularly the super-jumbo models such as the comma-shaped Microsoft Mouse. Smaller mice start at around \$10 for a model from Genius, while both Microsoft and Logitech have offerings aimed at home or children, for about \$60. There are even colorful replacement keyboards, aiming at younger computer users.

Popular games with all ages this season include the new 1996 version of NHL Hockey and Mortal Combat 3 (both about \$70). For the same price, surprise an OS/2 user with IBM's OS/2 Fun Pack.

If the seeming high price of games makes you want to rule them out as gifts, there are more and more available at relatively bargain prices. For example, you may be able to find re-releases of older software, with a sub-\$20 price tag... I saw products like Chuck Yeager's Air Combat, and a PGA Tour Golf/World Tour Tennis combo at that price range. Comics fans might enjoy the X-Man Interactive CD, also at that price.

Internet Access

\$16.⁹⁵

per month or less

All the time you'll ever need.
some restrictions apply.

Call
257-9400
and we'll connect you
today.

We're proud supporters of...
"A portion of your fee is donated to BCCH." Children's Hospital



INTERNET PORTAL

Phone ... 257-9400
Fax 257-9401

Info@portal.ca
http://www.portal.ca

SCEPTRE MAKES A MONITOR FOR EVERY APPLICATION, INCLUDING YOURS



11.3"

LCD Monitor



SCEPTRE®

EXCELLENCE FOR ALL THE WORLD TO SEE

SCEPTRE donates a portion of all profits to the Zoological Society of San Diego in support of C.R.E.S., the Center for Reproduction of Endangered Species.

© 1995 SCEPTRE Technologies, Inc. All Rights Reserved. All product and brand names are trademarks or registered trademarks of their respective companies.

*VDS = Viewable Diagonal Screen Size

Sceptre Technologies' RADIA-TION FREE LCD Flat Panel Display is both environmentally and user friendly. It offers viewing on flicker-free 10.2" TFT or 11.4" DSTN screen reducing eye fatigue, and lower voltage to lessen the risk of electric shock.

Ergonomically designed the LCD is only 2 inches thick, and weighs a mere 2.8 pounds.... Complete with a 78 inch cord and a detachable, adjustable base the panel can be wall-mounted. By keeping desktops clear of bulky computer equipment the LCD actually improves the work environment.



For the Windows 95 environment Sceptre Technologies, manufacturer of the BYTE BEST COLOR MONITOR --- 1994, offers the WINplay Series of monitors. This new generation of displays are plug and play and DDC 1/2B with a smaller, streamlined footprint. Featuring on-screen display, 32-bit technology, and unparalleled image quality, the WINplay Series is available in all the popular CRT sizes including 14, 15, 17 and 21 inch.

For more information call

1-800-788-2878

In Canada



(905) 477-6363
(604) 276-9986

In U.S.A.

Tech Data
CORPORATION
1-800-237-8931

INGRAM
MICRO
1-800-456-8000



This is IT, Vancouver!

Everything IT takes to keep your organization competitive...

Over 250 of the world's leading computer and communications companies!

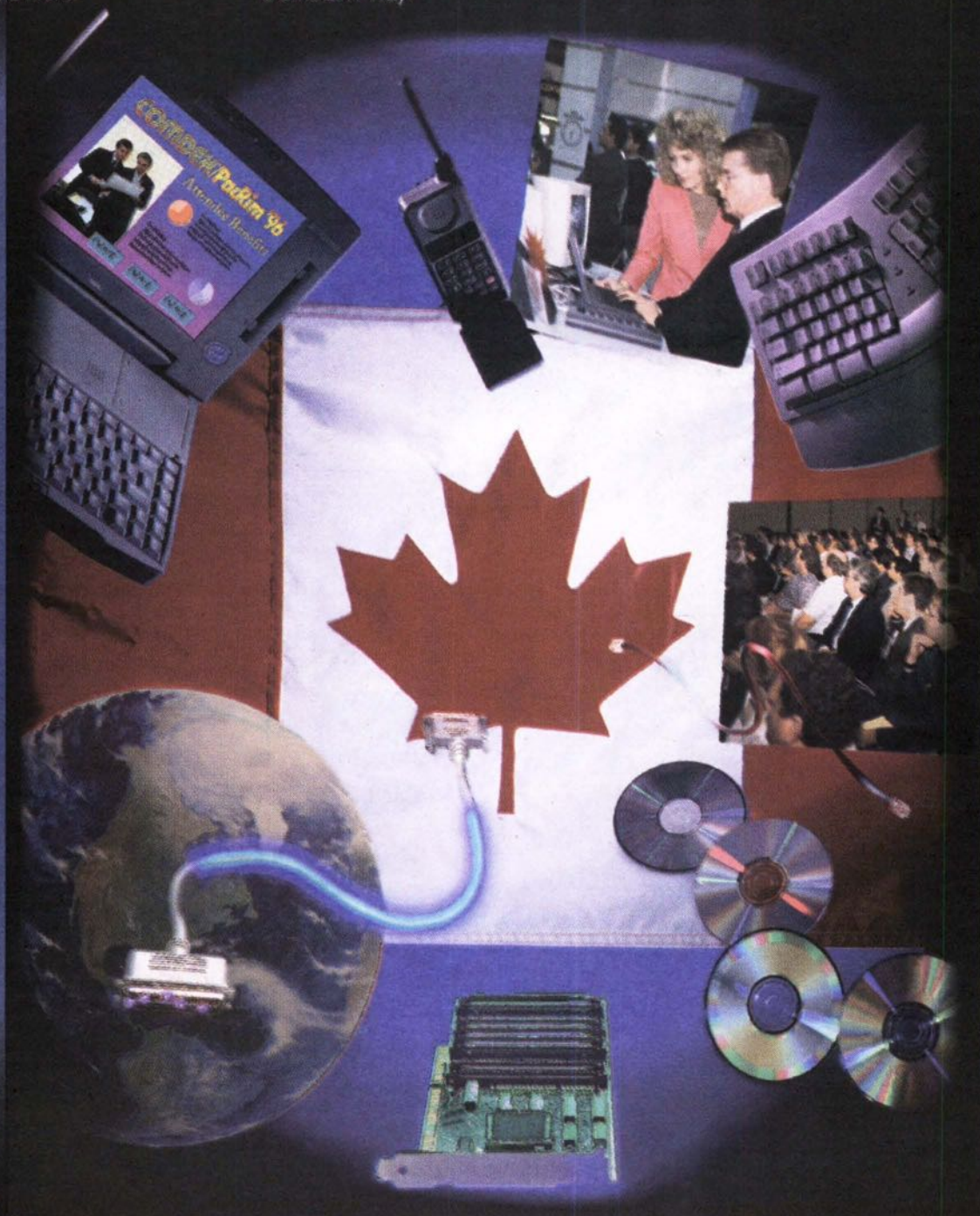
Thousands of product solutions — Windows 95, Alpha and PowerPC chips, Client/Server, Business Telephony, Mobile and Wireless Computing, and more!

Three NEW Dedicated Showcases — Communications, Multimedia, and COMDEX I-Way — The On-Line Services Showcase!

Live, hands-on Internet demonstrations — featured at the Internet Experience, a part of the COMDEX I-Way!

The world's #1 IT educational conference delivering the knowledge and solutions your organization needs to get ahead and stay ahead!

Two major keynotes on the latest IT trends and issues affecting the industry...and you!



Register
Today!

LOG ON! Registration and Updated Information **ONLINE** URL: <http://www.comdex.com/>

Go on-line to register or for the latest information on exhibiting companies, conference sessions and speakers, hotel and travel savings, and more!
Or register by fax! Call 617-449-5554, enter code 07, and have your fax number ready — we'll fax your registration form within 24 hours!

COMDEX®/PacRim'96

Serving the Information Technology Professionals of Canada and the Pacific Northwest
January 16-18, 1996 • Vancouver Trade & Convention Centre • Vancouver, British Columbia

Gamesters often find the standard computer keyboard + mouse combo frustrating... take a look at joysticks and gamepads. Burnaby's Advanced Gravis makes a Nintendo-like PC GamePad for about \$20. Joysticks start at that price, and quickly move up— one current fave is SunCom's Raptor, which resembles a fighter plane stick, costing about \$89. For \$70, you can get a bundle including the new MegaMan X game, along with an innovative 6-button game controller.



Older At Heart?

There are lots of options for the older computer user, as well.

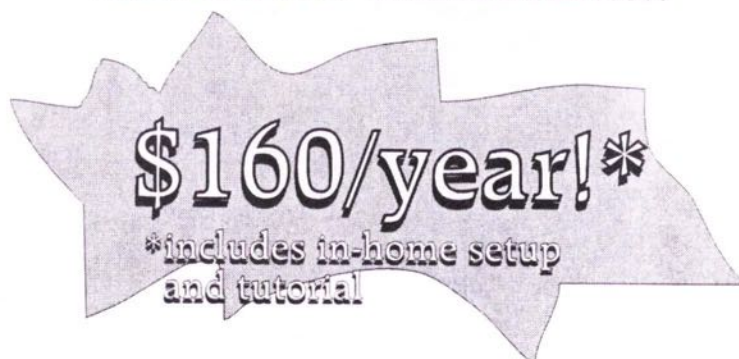
Planning a trip? Maybe Rand McNally's TripMaker (\$59) will help make it more enjoyable. Or how about a trip to Cyberspace... if the recipient already has a modem, but isn't yet hooked into the Internet, there's the Internet Canada Access kit, which for \$20 includes all the necessary software, and a 20 hour credit on the cross-Canada Access service. Similar bundles are available from most local Internet Service Providers.

Gift-givers with deeper pockets might want to speed up someone's modem. A user stuck with an old 2400 bps modem will be thrilled with a \$149 Sportster 14.4 model, while a 14.4 owner will love you forever for a \$300 Sportster 28.8.

Less expensive gifts can help computer users manage clutter— copy holders for around \$40, CD holders under \$10, Multimedia Organizers under \$20. Improve someone's health and safety with an ergonomically-designed gift... keyboard and mouse padded wrist rests for \$15 each, on up to a redesigned keyboard, such as the \$100 Microsoft Natural Keyboard.

Screen savers once helped protect monitors, but now are mostly for fun and decoration. For about \$50, there are a wide range available, often with comic book, movie, or cartoon themes, allowing you to find the perfect one for that special person. For the graphics user, CDs have made it possible to distribute huge numbers of pictures at a much lower price - such as ClickArt's 25,000 picture ImagePak for \$70.

DIGITAL RAIN ONLINE YOUR ONE STOP ONLINE SOLUTION



INTERNET:

SLIP/PPP or Terminal Access to the World Wide Web, E-MAIL, FTP, IRC from 2400 - 28.8 bps. PC or MAC. We support your platform!

INTERACTIVE:

Participate in Local Teleconferences, Trivia contests, MatchMaker software. Enter the Quickening, our online, interactive fantasy realm.

MULTIPLAYER GAMES:

Live, interactive, full motion games supporting 4+ players simultaneously. Heretic, Descent, Hexen, CivNet, Doom, Doom2, Doom Ultimate, and Quake when available.

VALUE:

Full Service Internet with a full Service BBS and Entertainment Service. Unix Shell Accounts and Home Pages Available.

#201-12837 76th Avenue, Surrey, B.C.

Voice: 543-3025

For Your Free Trial, Dial Modem: 543-3000

IF LONG DISTANCE, DIAL 668-8150, wait a moment, then dial 543-3025
You may also set your modem to dial 668-8150, 543-3000.

Canadian Computer Wholesaler

THE COMPUTER RESELLER'S HANDBOOK

☐ Yes, I want to receive (continue to receive) Canadian Computer Wholesaler. ☐ No

☐ New Subscription ☐ Renewal ☐ Change of address

Name _____ Title _____

Company _____

Address _____

City _____ Prov. _____ Postal Code _____

Tel () _____ Fax () _____

Signature _____ Date: ____/____/____
(must be signed to be valid) M D Y

Are you involved in the selling, reselling, and/or distribution of computer/networking systems, software or services?
☐ Yes ☐ No

Which best describes your job function? (check one only)

- ☐ President/VP/owner/gm
- ☐ Branch, store, district, regional managers
- ☐ Channel, retail, value added resellers and managers
- ☐ Purchasing and merchandising managers
- ☐ Product development managers
- ☐ Computer consultants
- ☐ Technical management
- ☐ Design, system and application engineers
- ☐ Marketing, sales managers

COMPLIMENTARY SUBSCRIPTION

Which best describes your firm's primary business? (check one only)

- ☐ Hardware/software retailer
- ☐ Mass merchandiser
- ☐ Consumer electronics/office machine retailer
- ☐ Value added dealer/reseller
- ☐ Distributor/wholesaler/hardware manufacturer/OEM
- ☐ Software developer
- ☐ Systems integration/software consulting
- ☐ Government purchasing agents
- ☐ Computer maintenance/service company
- ☐ Other third party and allied service firms

The system my organization integrates or resells are based on the following: (check all that apply)

- ☐ DOS/Compatibles
- ☐ OS/2/Compatibles
- ☐ Windows NT
- ☐ Networking
- ☐ Unix
- ☐ Macintosh

What is the number of employees at this location? (check one only)

- ☐ 10,000 or more
- ☐ 5,000 - 9,999
- ☐ 2,000 - 4,999
- ☐ 1,000 - 1,999
- ☐ 500 - 999
- ☐ 250 - 499
- ☐ 100 - 249
- ☐ 20 - 99
- ☐ Less than 20

What are your firm's approximate gross annual sales? (check one only)

- ☐ Over \$50 million
- ☐ Over \$25 million - \$50 million
- ☐ Over \$10 million - \$25 million
- ☐ Over \$5 million - \$10 million
- ☐ Over \$1 million - \$5 million
- ☐ Under \$1 million

All questions must be answered. Incomplete cards will not be processed. The publisher reserves the right to determine qualification.

Mail to: #900-1788 W. Broadway, Vancouver B.C. V6J 1Y1 or fax to (604) 739-3589

Are you a computer wholesaler, distributor or manufacturer?

Then you need to talk to computer retail owners, brokers, consultants, government purchasing agents, consumer electronic retailers and value added dealers/resellers.

Circulation of 12,000 plus mailed across Canada

Free subscriptions for qualified readers

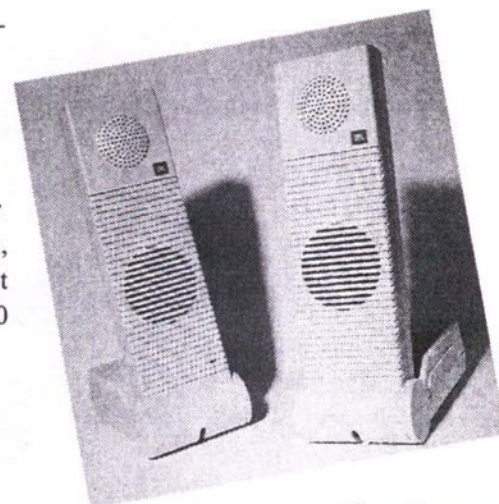
If your special someone hasn't yet added sound to their PC, a sound card such as the Sound Blaster 16 Value Edition will cost \$149... but add to that the price of a pair of speakers... from \$20 on up. If they DO have a pair of \$20 speakers, you may want to improve their sound quality— better speakers, with a sub-woofer for more impressive lows,

start about \$90 and can go up to about \$170 or more.

If sound seems to be frivolous, what could be more practical than a surge protector? Is the computer safe from power surges or lightning bolts? How about the modem in the phone jack? Very cheap powerbar-type surge protectors are actually pretty useless, but models that do

protect start at \$39, with more protection available for about \$100 or so. Make sure there are phone plugs for those modem lines.

Notebook users would appreciate a bag for their computer, with room for some file folders, cords, disks, modem, and all. Colorful cloth models start around \$50, with prices going up to \$200 for classier leather.



Then there are the gadgets and gizmos. Scanners allow users to digitize pictures and text— getting them onto their computer screen where they can be added to documents or manipulated in all sorts of wonderful and wacky ways. Black and white ('grey-scale') models start just over \$100, while colour models cost closer to \$300. For the same price, check out Snappy... a little unit that lets you capture still shots from a TV or video player. One bargain unit is the Connectix QuickCam— around \$100. This ping-pong ball-sized gadget is a real video camera that plugs into a computer, allowing still or full motion (black and white only— what do you want for \$100?) shots. The Windows version may be in the stores by the time you read this - the Mac version should be available now.

Upping the price point, there are more and more gadgets... tape backup drives for under \$300, for example (if she/he already has one, a couple of tapes are more affordable, but still appreciated gift). A cordless mouse from Logitech, for \$137 to get rid of some of those desktop wires. An 850 meg hard drive for \$400 or so.

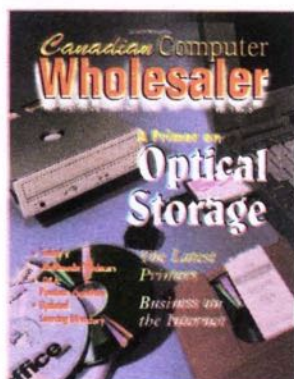
Or if you're nowhere near those price ranges, how about decorative laser paper? Lots of different styles, about \$10 a pack. In fact, special Christmas paper, for \$5 a pack, lets you laser print letters home, on an attractive, pre-printed background.

As you can see, there are a wide range of presents available at various prices for computer users of all ages. If forced to choose, Joey narrowed down his choices to MegaMan X or NHL Hockey '96. (Are you reading this, Grandma?) As for me? Oh, anything will do, thank you. □

About the author: *Alan Zisman* can be reached by e-mail: alan_zisman@computer-player.com

Fly with us

Canada's only two market computer publisher



Canadian Computer Wholesaler magazine (CCW)

reach resellers who want your product

12,500 copies across Canada



Computer Player magazine (CP)

reach end users who'll use your product

100,000 readers every month



CP and CCW web sites

surfing with you all the way.

plugged in on-line:
<http://www.ccmag.com/cw>
<http://www.computer-player.com/cp>



OCP Publications, tel: 604.739.8266 fax: 604.739.3589 e-mail: editorial@computer-player.com

STING A Final Unity - details are there for the patient

(Continued from page 43)

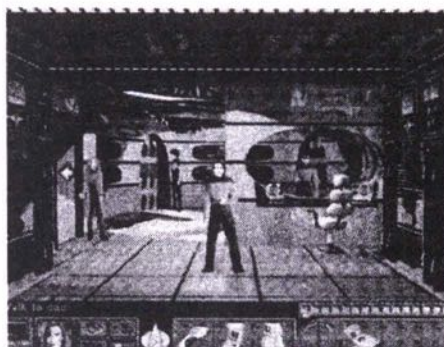
immense powers, just make sure you find it before the Romulans. There are plenty of other smaller missions and duties to keep you busy as well, as any Starfleet graduate would know. Take over the helm and send the Enterprise into warp 9.2, or command the tactical display in the middle of a phaser firefight, and there other posts to command as well. Too bad you can't really go anywhere but the bridge.

When the time comes for an away mission, pick your team carefully (if you're a cadet just take who they give you). Every team member has certain skills: Data and LaForge can give you info on scientific or technical subjects, Worf is a good shot with a phaser, and Troi can give you insight in to what the aliens you encounter are thinking.

Don't hesitate to ask them for advice because you'll usually get a pretty straight answer if you do. Everything should be scanned as only a tricorder can reveal an object's true purpose.

This game does have flaws though. As with most adventure games *A Final*

Unity is packed with standardized puzzles/mazes and meaningless dialogue. If you thought an episode of Star Trek could drag on, wait till you see this game, it is too often tediously slow



(I once waited, on my 486-25 w. 8 Mb, five minutes staring at the screen while the ship moved to another sector at maximum warp).

The verdict is, if you have the patience and enthusiasm for the Trek universe necessary to complete this game, then maybe this game is perfect. ..for you. □

You Are Tired of Busy Signals.
You Are Sick of Poor Service.

MOVE TO THE BEST.

EXCLUSIVE
INTERNET CLUB

Unlimited Time
500 Members Only
Less Than 10 Users Per Line
Accessible Technical Support

24⁹⁵
per month

Advertising

in

Computer Player
MAGAZINE

Call

(604) 739-8266



GO! Online Communications

info@jumppoint.com

http://www.jumppoint.com

8am - 10pm Mon - Fri

9am - 5pm Sat

phone 540-0271 fax 540-0272

Getting hits on the 'net

THIS YEAR

Internet access from MIND LINK! opens up
a new world of knowledge and adventure.

GIVE THEM

Surf the Web. Send e-mail in a flash.
Download software. All in one convenient package.

THE WORLD*

Give them a gift they'll really use.
At a price you'll really like. (Starting at \$10!)

***...AND WE'LL GIVE YOU A FREE MUG (offer open to MIND LINK! members only)**



MIND LINK!

phone: 668 5000
fax: 668 5028
e-mail: info@mindlink.net
web: http://www.mindlink.net

Quality Internet Access & Support. Since 1986.

JD Miller

Business on the Internet

Traffic. Something we all like to avoid in the physical world. Something we all want more of on the web. A good internet marketing strategy can generate excellent volume and maintain constant traffic. For those who lurk, you have designed an attractive and appealing web site with excellent information about your company and industry. For those wanting to do business, you must now accommodate the needs of those who approach.

A well designed site will already have incorporated different ways for potential business to approach. These can vary from simply advertising an 1-800 number to integrating elements of consumer psychology right into the interface of the site. Despite your budget, it is imperative to supply more than one reason why people should contact you instead of the one million other sites they could choose. This may be accomplished through cross-promotional strategies with traditional media, online games or contests, an excellently designed electronic shopping interface or joining a forum or mailing list. Regardless, interesting and easy ways for potential business to communicate with you is a must.

Communicating Across the Internet

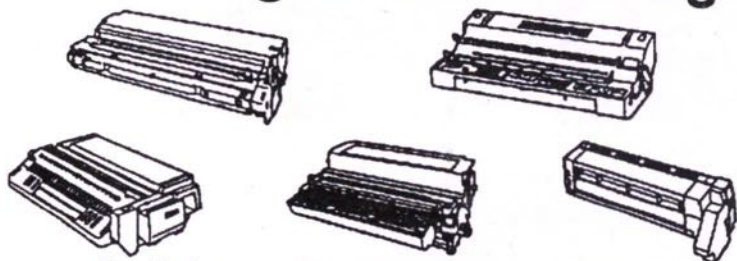
When someone phones your business, they can connect to another person and usually deal directly with someone (synchronous communication - no delay) who can help them. With e-mail, much the same as voice mail, there is no direct contact (asynchronous communication - some delay) and the need for prompt response increases dramatically! It may not be that you respond to e-mail immediately, although when connected most mail programs will alert you when you have new mail, however, when it only takes a few seconds to send e-mail across the globe, a prompt response is expected. Many businesses check their e-mail at regular times (8:00am, 10:00am, 1:00pm, 3:00pm) so often you receive a response the same day.

Mailing lists and automated mailouts are a great way to provide lots of specific information that may be easily passed over on the web. They can also provide an added value to the content of your web site and to the services your company offers. With the recent influx of users onto the net most forecasters are speculating about the future of Usenet newsgroups. The replacement? Private mailing lists, listserves and forums. Create an e-mail newsletter that provides up-to-date industry information and intelligence, recent

Does Your Office have a Recycling Program?

Conserve our environment and save \$\$\$ at the same time

Use Recharged Toner Cartridges



Alouette Laser provides remanufactured and refilled toner cartridges to laser printer users with savings up to 60%

100% Money Back Guarantee

We also carry other toners, developers & drum units. Cartridges are tested and completely disassembled when recharged. We also recharge cartridges for:

Photocopiers • Canon Personal Copier
• Sharp Z-series Copier
• Panasonic FP820

Laser Fax Machines

Laser Printers • HP Laser Jet I, II, IIP, III, IIIP, IIID, IIIsi, IV • Apple
• Canon • Brother • IBM
• QMS • NEC • and more!

Onsite Cleaning Service — Rebuilt Fuser Assemblies

FREE PICK-UP AND DELIVERY IN GREATER VANCOUVER

Alouette
LASER PRODUCTS INC.

114-3070 Norland Ave. Burnaby, B.C.

Call Today
291-8442

Fax: 291-8435

changes to your web site or new promotions. When you provide the option of receiving this type of information or not, you are adding value to your website and inviting potential business to make contact with you.

FAQs are another easy way to communicate essential information about an industry, product or service. In the spirit of DIY (do-it-yourself) people on line peruse read me files and FAQs and are being referred to them constantly. Creating a well laid out, easy to navigate FAQ can not only provide resource material to users but demonstrates a company's concern for service and familiarity with the internet. FAQs can be an incredible educational resource and give your web site added value.

Fax back technology is another innovation that is an easy and inexpensive way to provide information for potential business and allow users to interact on the web. A simple form which outlines the content they would receive is used to display options and insure they receive what they are looking for and not irrelevant information. Once this is selected another simple form acquires the necessary company and faxing information. Once the fax button is pushed the requested information is accessed and faxed to the office. Because every business has a fax machine and the

move to incorporate digital business environment technologies is in progress, faxing from the web is an excellent way to bridge the gap between the accepted way of doing business and the new and developing ways of doing business. This is an inexpensive venture for distributing hard copy information and a way for your company to lead others into the future.

Webchat or Hypernews are two great products. Webchat (<http://www.irsociety.com/webchat.html>) or other interactive communication tools for the web are excellent marketing tools. Webchat is an asynchronous web environment where people can post messages, GIFs or other files to be viewed in what is called a room. A room is a particular web environment where those in the room view the postings and respond. Rooms can be specific to topic, industry or interest. With the fully supported version and Netscape 1.1 viewing the postings can be refreshed at an interval the user chooses providing a near synchronous mode of communications with people on the web. Webchat can also support online lectures, presentations or interviews which provide real-time exchanges between people that would not have otherwise met.

Hypernews (<http://union.ncsa.edu:80/HyperNews/get/hypernews.html>) is just as it sounds: a hypertext newsgroup on

LYNX INTERNET

Only
\$20.00 / month*
UNLIMITED ACCESS

Instant Account Activation

28.8 kbps lines
SLIP and PPP dialups
Telnet
FTP
Usenet News
Web Pages
E-mail

No Hidden Charges
No Maintenance Fees
T1 Access to the World
Dedicated High Speed Servers

First month FREE!
for Students **



EXPLORE
BUSINESS OPPORTUNITIES ON
LYNX INTERNET

PHONE (604) 331-2511 FAX (604) 331-2522
<http://www.lynx.bc.ca> info@lynx.bc.ca

*\$25.00 one-time setup fee applies

** Offer expires December 31, 1995

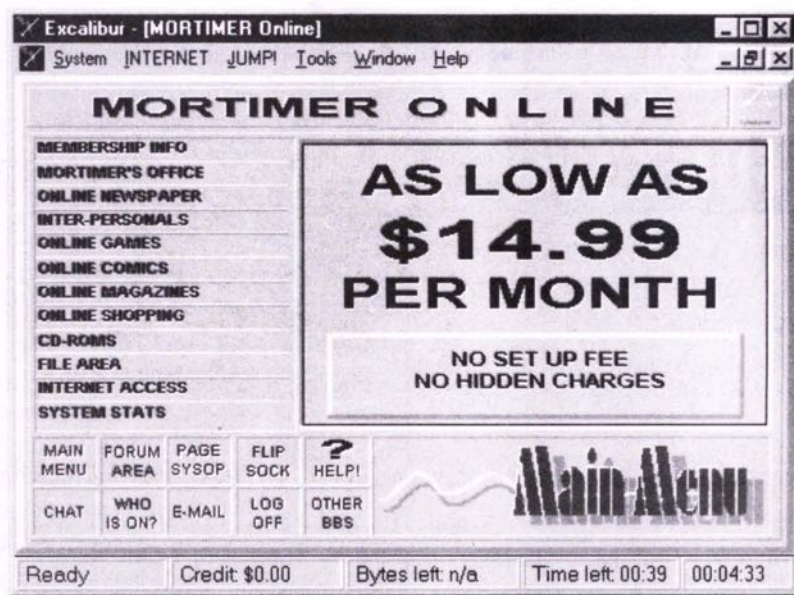
FULL T1 INTERNET CONNECTION

MORTIMER!
ONLINE!

A New World of Information, Ideas and People

NEW FEATURE

Log onto other Excalibur systems around the world using the Internet



→ Windows Interface
→ Point & Click
→ Netscape, Eudora
→ Email, Newsgroups
→ IRC, FTP, etc.

Modem 294-2955

Voice 294-2995
info@mortimer.com
<http://www.mortimer.com>

120 - 2465 Beta Avenue Burnaby BC V5C 5N1

the web. It functions identically to an Usenet newsgroup yet exists solely on the web. Industry related topics can be discussed, market feedback or public opinion can be gathered by interacting with others on-line. Universities across North America were using the Internet for exchanging ideas, soliciting opinions, tracking data and other functions long before business got wind of the concept. Going online to gather strategic information and learning about markets is as easy as creating a forum for discussion and inviting people to respond with their knowledge and experience.

Communicating Within Your Company

Web technology can also be used for some dynamic methods of communications. Companies with offices spread out geographically can now keep in touch in ways never before possible. Remember the e-mail alert? I have had business conversations through e-mail with people in Seattle. Three or four messages back and forth and we had accomplished the same thing we would have on the phone and fax but with less expense.

Think of the virtual boardroom. Over the weekend you receive an e-mail message telling you to look over a presentation on the web. The URL is listed with a password for entry to a protected area. You enter the password, press the enter button and watch as a message appears and is replaced by another periodically giving you a brief synopsis of what you're about to see (server push/client pull) (take a look at this site for an excellent example of push/pull <http://www.interverse.com/html/aside/aside01.html>).

After the brief synopsis is finished you now have the opportunity to make your way through an interactive business project on the web. With the recent advances of Netscape 2.0b you now are receiving real-time interactivity with no page downloading (<http://www.maoromedia.com/>). Graphs are animated to show changes in the market, text moves across the screen without you clicking on anything and the presentation comes to a close with a voice inviting you to respond and read other responses in a forum online. Suggestions and criticisms are posted and analyzed by everyone.

Monday morning you sit down at your desk checking your e-mail and there is a confirmation message of your presence in the site during the weekend. A final report summarizing the objectives and criticism gathered on the web comes as an attached file with the mail. A decision on the project with assigned tasks has been made and you will be notified of the initial project management meeting.

Web technology is already being used internally in many companies. Automated web page creation, adding sketches, sound or video presentations make the web the ideal medium for messaging departments or coordinating communications between departments on key projects. Archiving and linking previous or relevant information from other projects is another excellent time saving resource that can be accomplished on the web.

Web technology is advancing at an incredible rate! Accommodating many new features every few months, companies now have the opportunity to conduct business in ways never before available to them and in front of audiences only network television could reach. A client called and mentioned that he spoke with his computer consultant. The consultant told him that his business probably would not benefit from the web for another six months or so and to hold off developing a web site. Would it not make sense to develop now in anticipation of that time? To familiarize yourself with the internet now in preparation for that time? Would that not give you an advantage over your competitors when the time is right? Thinking like this consultant could leave you trailing your market instead of being ahead of them. Missing opportunities that first arise from doing business on the internet.

Next month we'll look at online transactions (SSL, secure socket layers), commerce servers and digital cash.

About the author: *JD Miller is a principal of Vancouver Internet Publishing and can be reached at je3d@van.com.*

"WE ARE NOT FAR FROM THE DAY WHEN A COMPANY WITHOUT A HOME PAGE WILL BE LIKE A COMPANY WITHOUT A FAX MACHINE."

John Patrick
VP Internet Applications, IBM

Watch sales develop when you communicate your business on the Internet. People can learn more about your company from your Home Page than any existing advertising medium. Vancouver Internet Publishing will work with you to formulate a sophisticated approach to keep them coming back.

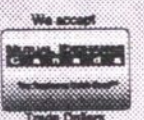
Call for a free Internet Marketing Consultation and take a look at your options before launching into cyberspace.*

vancouver internet publishing

604.924.2NET
marketing@van.com
<http://www.van.com>

*The one hour consultation will present an overview of authoring, design, marketing and technical requirements.

We accept Mutual Exchange of Canada trade dollars.



Computer Player

For advertising information, call (604) 739-8266

UNCENSORED INTERNATIONAL FUNZONE

Come experience the newest, most complete adult full-service entertainment BBS. With the hottest, most erotic GIFs (in amazing high quality!), sizzling live chat, e-mail, and discussion forums, plus games galore! Try your hand at a little poker or black-jack. And it's all FREE!

Drop into the FUNZONE for an experience you won't forget. Call now.

011 852 172 97 979



The Ultimate BBS.

Over 18's only. International calling rates apply.

Business owners!

If you operate a business and own a computer, you can now take advantage of this powerful program to handle your payroll.

POWERPAY

The Ultimate Payroll Program

Learn to operate in 30 minutes or less!

- * Simple Key Strokes
- * Menu-driven Selections
- * Form Data Entries
- * Help Is Just One Key Stroke Away

Flexible

- * Chooses pay period and pay method individually for each employee

Powerful

- * Captures pertinent information for summary reports

Key Features:

Pay periods

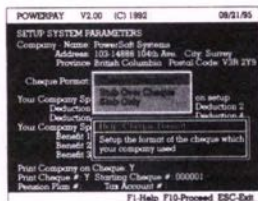
- * Weekly, Monthly, etc.

Pay methods

- * Monthly Salary, Hourly Pay, Commission

Reports

- * Revenue Canada Remittance
- * Monthly Employee Summary etc.



Windows version coming soon!

\$89
Call for a dealer near you.

PowerSoft Systems Ltd.

Vancouver Office
103-14888 104th Ave.
Surrey, B.C.
Canada V3R 1M4
Phone: (604) 582-7488
Fax: (604) 582-7399

Toronto Office
3-44 East Beaver Creek Rd.
Richmond Hill, Ontario,
Canada L4B 1G8
Phone: (905) 886-1688
Fax: (905) 886-2650

Benefits and Deductions

- * Six Benefits (Four Customized)
- * Nine Deductions (Six Customized)
- * GST Support, etc.

Other

- * Advance Cheque Handling
- * Posts Data On-Line
- * T4 Production

System Requirements:

512K memory, DOS 2.0 or higher, hard disk, 5.25" or 3.5" floppy drive, color or mono-chrome monitor. Runs on IBM and 100% compatible. Supports all popular printers.

NPSNET

BC's Premium Internet Service Provider

INTERNET ACCESS

\$14 per month*

"internet access that makes sense"

Annual Membership

- includes 250 hrs \$168.00
- internet Starter Kit and setup fee included

Package Offerings

- one time setup \$39.95
- net-start 50 hrs \$34.95
- net-plus 500 hrs \$324.95

* Based on Annual Membership Subscription, Tax not included

- ☒ no busy signals
- ☒ on-site installs and training
- ☒ direct satellite news feed
- ☒ WWW home pages

Call now for account activation

Voice **272-2624**
Toll-Free **1-800-319-8500**
<http://www.npsnet.com>
info@npsnet.com

Vancouver Webpages

Net Access Not Required



FREE LINKS - FREE LISTINGS

<http://vancouver-webpages.com>

Tel: (604) 377-4796 Fax: (604) 270-8285

Most Influential Execs Named

For a record third time, Computer Reseller News has put Microsoft Corp. Chairman and CEO Bill Gates at the head of its annual Top 25 Most Influential Executives list.

Gates has been a part of the computer industry trade journal's list for all but one of the past 13 years. He's the only individual ever to have topped the list more than once, also claiming the No.

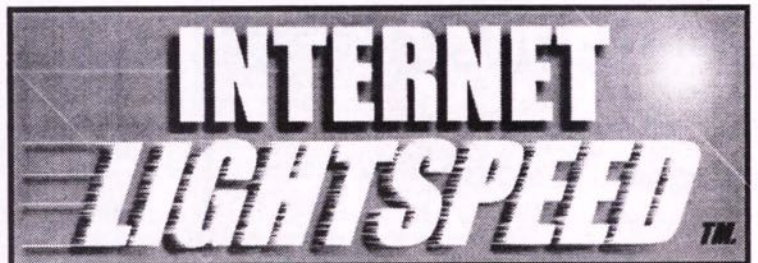
1 position in 1986 and 1991.

"With the launch of Windows 95 this year, Gates captured the mind share of more than just those familiar with PC technology," says Robert Faletta, Computer Reseller News' editor-in-chief. "His influence is deeply rooted in this industry and now in the general population."

2. Andrew Grove, CEO and president, Intel Corp.
3. Lewis Platt, chairman and CEO, Hewlett-Packard Co.
4. Eckhard Pfeiffer, CEO and president, Compaq Computer Corp.
5. Chip Lacy, co-chairman and CEO, Ingram Micro Inc., and CEO, Ingram Industries Inc.
6. Louis V. Gerstner Jr., chairman and CEO, IBM Corp.
7. Eric Benhamou, chairman and CEO, 3Com Corp.
8. Marc Andreessen, vice president, Technology, Netscape Communications Corp.
9. Craig Goldman, chief information officer, Chase Manhattan Bank N.A.
10. Larry Ellison, chairman and CEO, Oracle Corp.
11. Steve Ballmer, executive vice president, Sales and Support, Microsoft Corp.
12. John McKenna, president, Entex Information Services Inc.
13. Jeff Vinik, manager, Fidelity Magellan Fund, Fidelity Investments
14. Jeff McKeever, chairman and CEO, MicroAge Inc.
15. Dick Sanford, chairman and CEO, Intelligent Electronics Inc.
16. Steve Raymund, chairman and CEO, Tech Data Corp.
17. Robert J. Frankenberg, chairman and CEO, Novell Inc.
18. Mike Pickett, chairman and CEO, Merisel Inc.
19. Beny Alagem, president and CEO, Packard Bell Electronics Inc.
20. Scott McNealy, chairman and CEO, Sun Microsystems Inc.
21. Ed Anderson, president and CEO, CompuCom Systems Inc.
22. John Roach, chairman and CEO, Tandy Corp.
23. Robert Palmer, chairman and CEO, Digital Equipment Corp.
24. Robert E. Allen, chairman and CEO, AT&T Corp.
25. Mike Spindler, CEO and president, Apple Computer Inc.



ho ho ho...
SANTA'S



\$9.95/mo.

LIGHTSPEED_™

LIGHTSPEED_™ Service

- all 28.8 modems

Call **482-1190**

e-mail: sales@lightspeed.bc.ca

URL: <http://lightspeed.bc.ca>

WWW

Publishing Specialists

Division of Warlight Industries Inc. - Serving the high tech community since 1987

全球資訊網

< 第一部份 >

在 Internet 如此流行的今天，如果您不知道 World Wide Web (全球資訊網) 那您就落伍了！

如果您不知道目前臺 在 WWW 的成果，那您就真的太可惜了？

本期先介紹由筆者所收集臺 目前所有“教育機構”、“研究機構”及“政府機構”的 Web Site，下一期將會繼續

介紹民間組織、商業公司所成立的 Web Site (商機都在這裡)。

要查詢這些資料前，您必須要先具有以下的東西：

- 1) Chinese Windows (Big5 Code)。
- 2) WinSock Driver。
- 3) NetScape (或相容的瀏覽軟體)。
- 4) 向任何一家 ISP 申請 Internet 帳號。

有些 Site 同時具有中、英文兩種顯示方式 (大部份都只有中文)，但仍強烈建議各位使用能讀取中文 Big5 碼的環境。

在加拿大這裡除了 C-WIN 之外，您也可使用英文 Windows 再加上“漢文道”或“雙橋”的方式，來達到讀取 Big5 資料的目的。如果您覺得加裝這些軟體對您來講，會很對不起自己的荷包，那當然還有第三種方法……

第三種方法當然不是要您乾脆不要看 Big5 的東西！有興趣的人，可以打電話來問問筆者，或者直接上筆者所設立的 BBS 站來問問我吧 (BBS: (604) 821-1046)！

以下就是目前臺 大部份的教育機構所設立的 World Wide Web 資料。

學校名稱

台大計中
師大計中
政大計中
海大電機
陽明計中
中央電算中心
清華計中
交大計中
交大網路策進會
中興計中
中正計中
成大計中
中山計中
淡江計中
逢甲資訊中心
工技電子
大同資訊
世界新聞傳播學院
中正理工學院
元智工學院
中華工學院
東海大學電算中心
大葉工學院
雲林技術學院圖書館
東南工專
國立台中商專
吳鳳工商專校
南台工商專科學校
高苑工商專科學校
台北市立建國中學
中央研究院計算中心
行政院同步輻射研究中心
國家實驗動物繁殖研究中心
工研院
國家高速電腦中心
台 交通資訊系統
兩性與社會研究室
隨選視訊服務先導實驗
福山長期生態研究
行政院新聞局
行政院新聞局駐紐約新聞處
行政院國家科學委員會
行政院環境保護署
行政院環境衛生署
中央氣象局
國立故宮博物院
國立中央圖書館
國立中正文化中心
台北市立圖書館
高雄縣資教網路
省立新竹醫院

URL 位置

位置: <http://www.ntu.edu.tw>
位置: <http://www.ntnu.edu.tw>
位置: <http://www.nccu.edu.tw>
位置: <http://www.ee.ntou.edu.tw>
位置: <http://www.ym.edu.tw>
位置: <http://www.ncu.edu.tw>
位置: <http://www.nthu.edu.tw>
位置: <http://www.nctu.edu.tw>
位置: <http://www.edu.tw>
位置: <http://www.nchu.edu.tw>
位置: <http://www.ccu.edu.tw>
位置: <http://www.ncku.edu.tw>
位置: <http://www.nsysu.edu.tw>
位置: <http://www.tku.edu.tw>
位置: <http://www.fcu.edu.tw>
位置: <http://www.et.ntit.edu.tw>
位置: <http://www.cse.tit.edu.tw>
位置: <http://cc.wjcc.edu.tw>
位置: <http://www.ccit.edu.tw>
位置: <http://www.yzit.edu.tw>
位置: <http://www.chpi.edu.tw>
位置: <http://s867.thu.edu.tw>
位置: <http://www.dyt.edu.tw>
位置: <http://www.lib.yuntech.edu.tw>
位置: <http://peacock.tncc.edu.tw>
位置: <http://www.ntic.edu.tw>
位置: <http://www.wfc.edu.tw/Welcome>
位置: <http://www.ntc.edu.tw>
位置: <http://www.kyit.edu.tw>
位置: <http://www.ck.tp.edu.tw>
位置: <http://www.sinica.edu.tw>
位置: <http://www.srrc.gov.tw>
位置: <http://www.nlac.gov.tw>
位置: <http://www.itri.org.tw>
位置: <http://www.nchc.gov.tw>
位置: <http://www.tem.nctu.edu.tw/~yamaha>
位置: <http://r703a.chem.nthu.edu.tw/~rpgs>
位置: <http://www.seed.net.tw/~viit/viit>
位置: <http://www.seed.net.tw/~fushan>
位置: <http://gio.gov.tw>
位置: <http://www.taipei.org>
位置: <http://www.nsc.gov.tw>
位置: <http://www.epa.gov.tw>
位置: <http://www.doh.gov.tw>
位置: <http://www.cwb.gov.tw>
位置: <http://www.npm.gov.tw>
位置: <http://192.83.186.71>
位置: <http://www.ntch.edu.tw>
位置: <http://www.tpml.edu.tw>
位置: <http://www.kscg.gov.tw>
位置: <http://web.nchc.gov.tw/~cosin/hc-hosp>

TwinBridge™ Multi-Lingual Series

CHINESE Partner

雙橋

Windows 95 and Internet Ready!

視窗中文系統

雙橋視窗中文系統提供您在視窗環境上處理中文最簡便有力的用戶介面

您可以啟動雙橋中文系統，選擇您最喜歡的中文輸入法，配合英文視窗上的文書處理軟件來寫中文信件、報告等等。您可以利用Excel建立中文格式的商業文書報告，還可以結合先進的繪圖軟體來繪製園遊會大型海報，美工平面設計圖案，或是標注中文的工程藍圖。此外，雙橋還提供簡易英翻中、單字節轉換器、造字功能及詞典管理等工具。雙橋視窗中文系統的靈活、兼容性，與數千種視窗軟體相容，讓您的構想無限延伸……



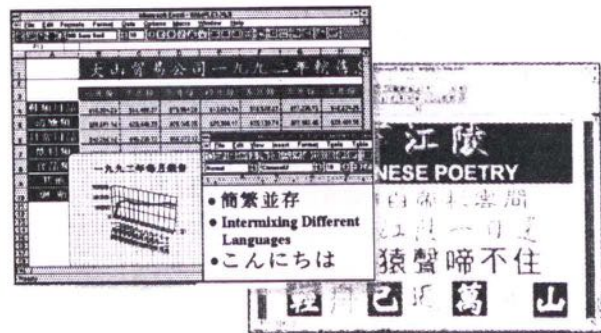
系統特色

- 中、日、韓漢字內碼 (CJK 20902) 核心
- 從十餘種輸入方法中，選擇個人最適用的輸入法，獨創最新超級中文拼音、注音輸入方法
- 輕鬆自如的轉換中文內碼，隨心所欲的變換繁、簡體中文字
- 智慧型聯想功能，用詞遣字宛如神助/四聲語調功能，縮短輸入時間

- 短語輸入可同時輸入長達64字/即時加詞功能讓您隨時擴充詞典容量
- 常用字詞自動調整位置，方便選入
- 可任意添加 True Type 中文字體
- 字元對應表易於檢索、查字
- 兼容 OS/2 Warp 及 PowerPC Windows mode，帶領您進入全新的中文視窗領域

系統功能

- 支援各種網路系統及 Windows for Workgroups
- 支援各種顯示器及 Windows 所支援的主要印表機
- 支援 Windows 95 及 C-Windows 3.1 版本的所有功能
- 開放介面可連接其他中文輸入法和手寫系統
- 創造各式各樣形態美妙的中文圖形字體，供美工繪圖之用
- 各種輸入法之鍵盤圖可顯示於螢幕上，並可放大、縮小及移動
- 支援多種精緻美觀的簡、繁體向量及真實體字集供選擇，字體大小可隨系統變化
- 兩萬餘字中文字庫和五萬多個二、三、四字詞組 (用戶可隨意修改、調整字庫內之字及詞組)
- 英漢詞典超過四萬字 (用戶可隨意修改、調整詞典內容)
- 自動加格，配合應用軟體自動轉折

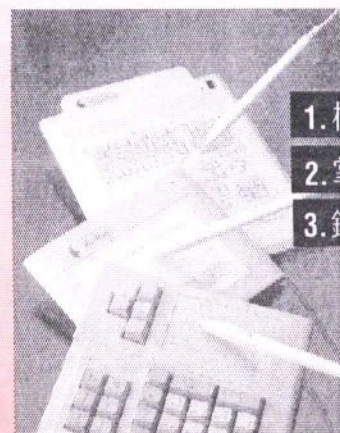


主要工具程式

字典管理可隨需要修改、增加、刪除字或詞於任何輸入法的詞典
圖形轉換器將中文字處理成視窗圖形的方式以用於圖形軟體中
單字節轉換器將中文字轉換為單字節來支援不接受雙字節的硬體或軟體和做特殊圖形效果處理
造字功能首創利用現有字的部首拼排組合造字



中文手寫，一筆搞掂



1. 標準型博士筆
2. 掌上型博士筆
3. 鍵盤型博士筆

揚友博士筆
中文手寫系列

加拿大總代理：



CompuCanada Inc.
加拿大電腦中心

地址：2940 Main街 (14th Ave. 交界) 二樓，200室
電話：872-6066 傳真：872-0288

下期精彩預告：您想立即瞭解臺 目前政經、社會動態嗎？相信臺 中國時報的即時新聞可以滿足您的需要 (即時的哦)？還有臺 各黨派所開設的 Web Site ……
本期完，下期待續 ……

作者：林啓清先生目前職務：中華民國電腦通訊業餘網路協會 常務理事；中華民國電腦通訊業餘網路協會 活動委員會 主任委員；中華民國網路協會 BBS 委員會 主任委員；第三波雜誌 編輯顧問；光碟雜誌 編輯顧問；加拿大電腦世界雜誌 (Computer Player) 專欄作家。相關著作：BBS 電腦通訊站入門與架設實務 (立成出版社)；BBS 電腦通訊站技術秘笈 (第三波)；Maximus BBS 架設實務 (資訊與電腦)；BBS 電腦通訊站使用入門 (倚天)；小朋友學 BBS (長諾)；數據通訊教材系列 — BBS & Internet 入門篇 (松崗)；資訊高速路導覽 -- Internet Yellow Book (松崗)。

中文 Windows 95 開始接受預約

隨著 Windows 95 在八月下旬推出之後，Windows 95 中文在緊羅密鼓的籌備之下，也即將於十二月間正式與千萬觀眾見面了。月前搶鮮版在台北收費推出之後，有許多人已經在電腦上領略了此一作業環境的風采，十二月間恆基公司將會在最快時間推出介紹給加拿大地區的用戶。同時，今年十二月也是恆基在溫哥華公司成立的第四年，特別推出預約優惠辦法，對 Win95 中文版有興趣者可以和恆基公司聯繫。

高檔次中文手寫筆 -- 精品漢筆在溫哥華正式推介

目前在港台地區流行多間公司的電腦中文手寫筆，其中「蒙恬筆」、「精品漢筆」系列一般被認為是高質量的強勢產品，由於辨識率更加準確，因此定價也比其他產品相對的高，恆基公司在加西地區代理推出這一新系列提供用戶有更多的選擇。更以最優惠價格優待所有用戶。這套產品系列

支援簡繁體中文系統、字庫，可以在中文視窗、雙橋、中文之星等著名的 Windows、DOS 環境裡輸入中文而不須去練習繁複的中文輸入法，至於全螢幕書寫、先寫後認、香港字集等功能都是新系列裡不斷增加的特色，這項產品在溫哥華有專人示範，另外，也可以安排到社團機構說明介紹。

中文 Internet 電子網絡通訊雜誌

恆基公司為配合當今最熱門的 Internet 網路熱潮，本月間將推出一份「中文 Internet 電子網絡通訊雜誌」，這份雜誌將以 EMAIL 的方式傳送給讀者（日後計劃推出 WWW 版），以中文為主，介紹網路新話題、有趣的 WWW 資訊網地址、網篇文章選讀、新工具推薦、中文軟件、電腦新書、遊戲選介等等。這份刊物以恆基會員為主要訂戶，免費贈送，有興趣的一般讀者，如果其電腦能支援中文，具有 EMAIL 地址者，也歡迎提出申請。申請表格請洽問該公司。

新的電腦產品陸續供應

本月新推出的中文產品有：中國傳統醫學系列，包括「認識中國草藥」、「中國針灸方法」、「中國推拿」、「經穴位置圖」。教育方面，有數學光碟大全：「四則運算、三角、幾何、微積分、統計學」（英文

版）。新書方面，有「Windows 95 系統入門與精修」、「Coreldraw 5.0 應用」等，部份新書還會陸續運來，部份產品接受預約。For more information, contact B.I.S. Information Systems. Tel/Fax: 604-6888916

4 Years Celebration!

MS Chinese Windows 95 Pre-Order Discount Mandarin Course On CD-ROM 10% Off

- 中文 Windows 95 預訂 9 折優惠!
- 特別推介 -- 精品漢筆高檔手寫系統
- Chinese Internet News Letter
- 中文電子通訊贈送
- 宏碁電腦 586 系列

- Twinbridge 4.0 (4 周年特惠價 249.00)
- Windows 95 ASIA (中、日、韓文合用版)
- Chinese Pagemaker 5.0
- Chinese Coreldraw 5.0
- Chinese MS Access 2.0 driver
- 電腦英漢字典、翻譯系統
- Windows 95 系統使用(新書)
- Coreldraw 5.0 (新書)

- 中國草藥(CD)
- 中國推拿(CD)
- 數學教材(CD) (三角、幾何、四則運算)
- 新唐詩 300 首(CD)
- 日文漢電腦讀本
- 象棋、圍棋、跳棋
- 學英文、學中文(CD)
- 電腦鐵嘴直斷 (新目錄歡迎索取)

周日電腦速成班

- Windows 操作班
- Internet/中文 Internet 班

(遊戲玩家)

<會員徵募中>

- 遊戲示範：
- 遺作
 - 3X3 眼
 - C&C 大戰略
 - 台海對決
 - 轉校生
 - 超未來少女
- 遊戲雜誌：
- 軟體世界 11 月號
 - 電腦玩家 11 月號
- 工具軟體：
- Game Tools
 - Game Wizard

Learning Chinese on CD-ROM

- * Complete 170 Lessons
- * English Dictionary
- * Simplify and Traditional Characters
- * Character Writing Tutor
- * Ping Ying Tutor
- * Twinbridge Special \$ 249.00
- * MS Windows Chinese
- * Chinese Editor for Windows 95
- * Vietnamese, Korea, Japanese Editor
- * Learning Chinese on CD-ROM Basic Version \$ 28.00

MultiMedia Chinese Software Supply Centre 軟體銀行·排版系統

BIS 恒基中文電腦公司
BIS Information Systems
#203-124 E. Pender Street, Vancouver B.C. V6A 1T3

Tel: (604)688-8916/930-9108
Fax: (604)688-8916
Email: Waynelee@Direct.ca

臺灣電腦顧問公司

COMPULINK SYSTEMS INC.

- | | | |
|---|----------------------|-------------|
| 各 | 1. BBS & Internet 入門 | (臺灣松崗出版社出版) |
| 類 | 2. Word 6.0 中文版快學秘笈 | (臺灣第三波出版) |
| 中 | 3. 例說 Word 6.0 中文版 | (臺灣第三波出版) |
| 文 | 4. AmiPro 3.0 中文版入門 | (臺灣第三波出版) |
| 書 | 5. 例說 AmiPro 3.0 中文版 | (臺灣第三波出版) |
| 籍 | 6. 即學即用 AmiPro 3.0 | (臺灣第三波出版) |

電話：(604) 657-4919 (Mon-Sat, 13:00-21:30)



Acme Computers

1935 Burrard St. (at 4th), Vancouver, BC

Hours: 10am - 5pm
Closed Sun & Wed

Free system delivery,
details in store.

Tel: (604) 736-3668
Fax/Ans: 736-3385

Value, Service & Quality You Can Trust

Personal Computer Training

MS-DOS
MS-Windows
WordPerfect
Lotus 123
MS-Word
MS-Excel
MS-Works...

Anytime.. Anywhere..
由中、港、台專業導師，以國語、粵語私人上門教授
Book your session now!

IBM Aptiva Pentium® 133

Model M70 with HP600 Deskjet Printer

- 1.6 gig hard drive
- 28.8 Voice Modem
- MPEG full motion video
- 4X Speed CD-ROM
- SRS 3D surround sound
- Voice Ditation & Navigation
- IBM 3 years express

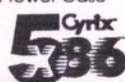


Tower model also available

IBM & Aptiva are registered trademarks of the International Business Machine Corp. *1 year warranty on IBM monitor. Prices subject to change without notice & include 1.5% cash discount.

ACME Systems:

- | | | |
|---------------------------------|---------|--------|
| PCI Bus, Energy Star, 256 Cache | DX4-120 | \$1178 |
| 8M RAM, 1.44 FDD, 850MB HDD | P75 | \$1320 |
| 14.4 Internal Fax/Modem | P100 | \$1495 |
| Enhanced IDE Controller | P133 | \$1828 |
| Enhanced Parallel Printer Port | | |
| 2 X High speed UART Ports | | |
| 101 Keyboard, 3 Button Mouse | | |
| PCI Windows Acc. Video | | |
| Mini Tower Case | | |



Cyrix 5x86 100MHz

Internet Ready

Top quality components - Rigorous testing
Pentium Systems are EDO memory ready with Intel triton chip set (GigaByte), optional Pipe-line burst cache

NI LR Monitor 14"/15" Digital.....\$295/439
28.8/14.4 Int. Fax/Modem.....\$179/59

FREE Internet account fully setup
ready to surf the Net, Basic training included. Call for details

CREATIVE 2X/4X Spin MultiMedia Kit \$268/349
CREATIVE LABS INC. Home Quad MultiMedia Kit \$505
Modem Blaster 14.4 with 4 modem games on CD \$69

Repair & Upgrade - Free Estimate

- | | | |
|---------------------------------|--------|------------------------|
| LaserJet 5L True 600 X 600dpi | \$675 | Authorized
Retailer |
| Deskjet 660C Color Smart | \$550 | |
| ScanJet 3c 30-bit color 2400dpi | \$1350 | |

Canon BJC-70 Portable Color Bubble Jet \$465
BJC-30 Portable Bubble Jet \$299
BJC-4000 Color Bubble Jet \$399

Hundreds of CD-ROM titles Starting at \$9.95 each

- | | |
|-------------------------------------|----------------------------|
| Windows 95 upgrade.....\$118 | Intel DX4-75MHz COLOR |
| MS Office Pro for Win95.....\$688 | PCMCIA, 10.4" DSTN Display |
| MS Word for Win95 upgrade\$129 | 5.2lbs with NIMH Batt. |
| Flight Simulator 5.1/CD.....\$55/69 | |
| Lion King Story Book CD.....\$38 | |
| Corel Photos CD Sampler1.....\$18 | |

INTERNET Email: acme@unix.infoserve.net
http://www.infoserve.net/acme

Cold Water and Clocks - inside the motherboard

(Continued from page 38)

memory bus arrangements running in parallel. The CPU may generate a reference for four bytes of data, but the memory controller on the main board fetches eight bytes. Half of the data fetched is used to satisfy the current instruction, the other half is buffered for a cycle.

The design of a 486 with internal cache and a 16-byte burst provides the opportunity for interleaving. Immediately after the CPU fetches the data needed for an instruction, it will continue to fetch the remaining 12-bytes immediately around it. With interleaved memory, the next four bytes have been anticipated and are immediately available. Even better, while the second four bytes are being transferred to the CPU, the memory controller has already started to fetch the second block of eight bytes.

Since the memory cannot be made to run any faster, interleaving doubles the effective speed of the memory by moving twice as many bytes in the same amount of time as an ordinary 32-bit bus. Of course, it adds complexity to the main board and forces memory to be installed in pairs of matching SIMMs.

In simple cases, interleaving matches the speed of the memory to the speed of the CPU. A 33 Mhz processor operates on a 30 ns cycle. RAM operating at 70 ns takes slightly more than two cycles to respond. However, a device that processes four bytes every 30 ns is approximately matched by a device that delivers eight bytes every 70 ns. Interleaving therefore speeds up the memory subsystem without actually speeding up the memory.

The SX, SLC, and DX

The chip suffix letters were once meaningful. They have now degenerated under an avalanche of marketing pressure. What does GT or LTD really mean

on a car? Well, a 486 SLC means about the same thing.

There are three considerations in an Intel or compatible CPU chip:

1.) How many data bytes does it transfer to or from memory at a time: 16, 32, or 64?

2.) Does it have an internal math co-processor for scientific floating point calculations?

3.) Does it operate at laptop low power (usually 3 volts) or desktop high power (usually 5 volts)?

There is also the question of how much internal cache does the chip support, but that depends more on the vendor than on the suffix of the chip.

The whole SX/DX mess got started when Intel introduced the 386 SX chip. It has a 16-bit path to the memory and supported only 24 address bits (allowing a maximum of 16 megabytes). In current use, the IBM 486 SLC and SLC2 chips have the same data and address restrictions. The original SLC family may no longer be part of the IBM product line, but it appears in certain IBM-made main board upgrade kits that can be purchased to convert an old 386 machine to some type of 486 machine.

All other chips in current use (SX, DX, DX2, SL, DLC, etc.) all support a 32-bit path to memory and a 32-bit address. In the true Intel 486 family, a DX, DX2, or DX4 chip has an internal math co-processor (a Floating Point Unit or FPU). You are probably aware of this after the Intel blunder. This is important for scientific, statistical, or mathematical calculations. It does nothing for ordinary word processing, spreadsheets, or even graphics packages. A program must be

written to use the instructions supplied by the FPU.

Since ordinary business applications (word processing, spreadsheets, database) do not use floating point instructions, it used to be possible to save a few hundred dollars and buy the less expensive Intel 486 SX chips. Unlike the 386 SX, where "SX" meant a 16-bit path to memory, a 486 SX chip has a full 32-bit path to memory, but no floating point unit.

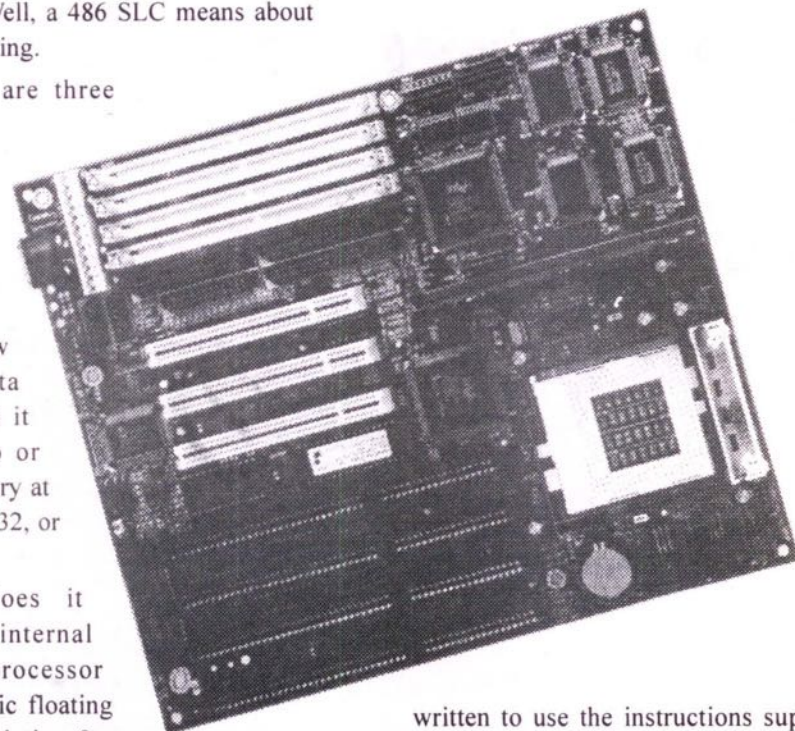
Over the last year, Intel has increased its production of Pentium processors and dropped prices on its 486 DX chips. On a new machine there is little to be saved by taking an SX chip without the floating point capability over a DX chip that has it. Although the floating point may have little effect on the actual performance of the machine, at this point the reduction in resale value would probably outweigh the additional cost (if any).

Intel has confused things by adding an SL family of chips with low power requirements. These are used in laptops and "Green" desktop units. It appears that some SL chips have a floating point unit, and some do not. It is necessary to read the fine print to know what an SL system provides.

Well, that's a rap for this month so I hope this gave you a small insight into the computers Memory CPU's, Motherboards, and Caching. □

Keep smiling and Happy Computing.

About the Author: **Rick McLaughlin** is a leading computer consultant from New Westminster and can be reached at (604) 521-6831 or E-Mail: rickmc@wimsey.com (or) E-Mail: rick_mclaughlin@mindlink.bc.ca



Zad-All-Win Save Money Protect the Environment Give Disabled Persons Work

Use Remanufactured toner cartridges.

Visit us for those hard to find ribbons at less than half the cost of new ones.
Reloaded and colored.

100% Guaranteed

Zadall Systems Group and All-Win Workshops
are pleased to announce...

Zad-All-Win

Together we have formed a business partnership which combines the strengths of both companies, and we are able to provide environmentally-friendly business products at noticeable cost savings to the customer.

All-Win Workshops Society is a remanufacturer of all existing and future toner and laser cartridges, plus printer ribbons and ink jets.

Check out our unbeatable prices. Examples of our special prices are: HP III & HP II P cartridges w/exch \$39.99 each, HP IV cartridge w/exch \$75.00, Call for pricing on our IBM series cartridges with exchange.

In combining with Zadall, All-Win will be in a position to offer more opportunities to persons with any disabilities, showing what a great job these persons who face each day as a new challenge can do.

All-Win can be reached at 1-604-272-9921, 1-800-811-2888, or fax at 1-604-244-1169.

Charitable Giving With An Advantage

Richard K. Acton

With the season of Christmas giving coming and year-end tax deductions on our minds, Bruce Maybank, C.A., an associate in our firm and I recently had a discussion about charitable giving. I thought some of the points in our conversation would be useful for many of the readers of this column. Knowing that Bruce had developed knowledge in the area, I asked him to write this month's column. The subsequent paragraphs are Bruce's thoughts on this issue. If you wish to reach him to discuss any of these matters further his business phone, which you will find at the end of the column, is the same as mine.

Charities are everywhere. Chances are you've been asked to donate to charities at work, on the street, and in your home. With such a demand for giving, and for most of us, such a limited amount of resources, it is becoming more important to plan your contributions to ensure your dollars reach the charities that matter most to you.

Charitable organizations too must plan their spending. As funding available through government sources is reduced, both the dollars raised today and in the future become more crucial to the continuation of the organization. Charities are focusing not only on "present gifts" or cash and non-cash assets, but also on "deferred gifts" of major contributions that will allow them to more accurately forecast their funding for the future.

Not only can giving to charity be personally satisfying, it can also be beneficial at tax time. If you want to take advantage of the tax benefits of charitable giving, individuals must first ensure their chosen charity is a "registered charity" as determined by Revenue Canada. In doing so, an issued "tax receipt" will be valid and can be used as a "tax credit" from income tax that would normally be paid.

Secondly, decide on the method and amount of your contribution. A cash donation will entitle you to a tax credit equal to 17% of the first \$200 donation and 29% of charitable donations over \$200. When the provincial tax is calculated the combined effect is approximately 25% on the \$200 and 44% on the excess. There is a set limit of 20% of an individual's net yearly income.

Corporations may also deduct 20% of their taxable income. If you are the principal shareholder in a closely held corporation and are considering a sub-

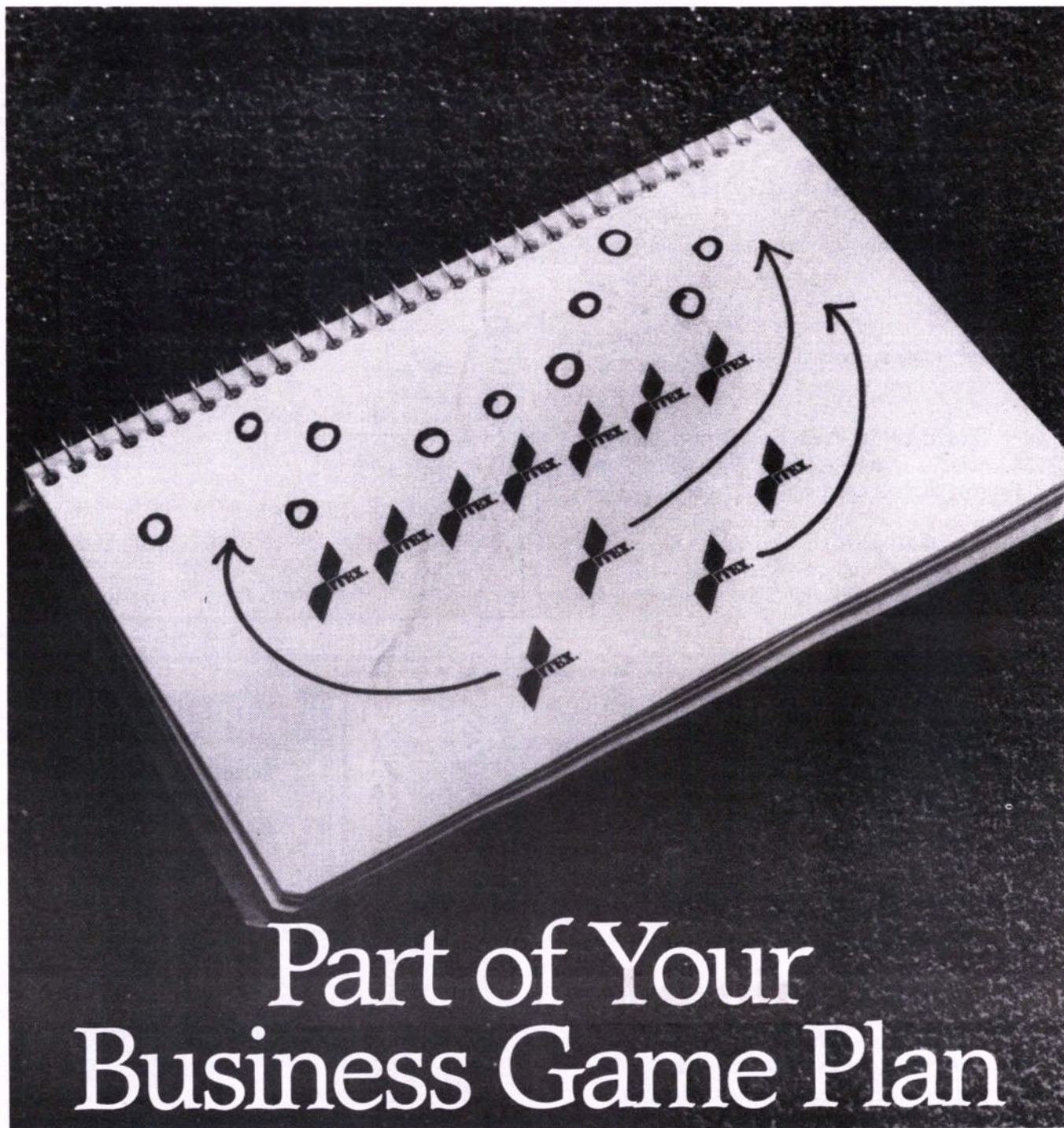
stantial donation, you should meet with your Chartered Accountant to determine whether a contribution by yourself, your corporation or both will provide the best results from an income tax perspective.

"Gifts to the Crown" or "gifts of certified cultural property" are NOT limited to 20% of net yearly income and therefore could effectively reduce an individual's income to nil. "Gifts to the Crown" are defined as those made directly to a government body such as the National Gallery, a university or hospital foundation (such as the B.C. Cancer

Agency) or to the federal government or a provincial government.

Charitable donations made through payroll deductions are a relatively painless method of contributing to your chosen charity. By donating small amounts on a regular basis, the overall contribution can be sizable. As the donation ap-

(Continued on page 68)



Every company needs a plan, a game plan for business success. Without it, your business might not even survive, let alone make it to the playoffs.

That's why ITEX barter should be part of your plan. Successful businesses across America are using barter as an integral part of their business strategy, and ITEX is the nation's leading barter company.

As a member of the ITEX Trade Exchange, you can access a nationwide network of ITEX offices representing thousands of other barter minded businesses. ITEX can bring new customers, strengthen your cash flow, and provide a valuable source of financing.

So make ITEX part of your business strategy. When the playoffs are over and your business emerges a winner, you'll be glad you added ITEX barter to your business play book.



ITEX Bartercard, PO Box 82008, Burnaby, B.C. Tel: 604 521-7911 Fax: 521-7944
E-mail: john_madsen@mindlink.bc.ca ITEX Internet address: <http://www.itex.net>

HOW-TO
BOOKLETS
call
254-5940

DESKTOP PUBLISHING

Corel VENTURA
Corel DRAW
Corel PHOTO-PAINT
Harvard Graphics

Step-by-step instructions
Projects, tips and tricks
Ideal for training or
self-directed learning

For training and production **medea**

ALL TYPES OF BUSINESS FOR SALE

From A-Z through out
Western Canada.
Contact
Dominion Business Clearing,
#2-1381 Hastings
Crescent S.E. Calgary,
Alberta, Canada.
T2G 4C8.
Fax (403) 243-9391.

SEYMOUR ARM

Best Two Acres \$44,500
15% down,
owner will
finance balance
over 7 years.
Call Frances
Tel: (604) 526-5001
or
Fax: (604) 521-7944

600 How-to Books Reports & Guides You Can Reprint & Sell For Big Profits - on CD-ROM!

New Windows CD-ROM has full-texts & publishing
rights to over 600 hottest selling titles, including
"The Lazy Person's Secrets to Overnight Wealth!"
Only \$97, Fast delivery, Satisfaction guaranteed,
24-hrs: 1-800-272-5335, VISA, M/C welcome.

INCREASE YOUR WEB TRAFFIC!

- Do you need more traffic to your web site?
- Would you like MORE SALES!
- MAXIMIZE your Internet Exposure!
- GUARANTEED SATISFACTION!

If you have a web site but need more exposure, we'll list your
company on over 50 directories and search engines on the NET!
Call now for more info: 604-261-4560 or 1-800-689-3565!



INTRODUCTORY OFFER! ONLY \$49.95!!!

Email: careyc@direct.ca
http://web.idirect.com/~cdrom

PORTABLE BOLTS

The whole business, Lock, Stock & Barrel, fits in
one room. Stock includes several thousand units
ready to ship, plus components for more. Pulse
sized, the multipurpose in-door security lock is easy
to use and offers safety at home or when travelling.
Retail value \$35,000. Other interests force sacrifice
sale at \$6,500. All reasonable offers considered.

Contact: John O. Madsen, CA
Tel: 604 521-7911 Fax: 604 521-7944
E-mail: john_madsen@mindlink.bc.ca

APARTMENT SITE

1.65 acre apartment designated site in Port
Coquitlam. Across street from new Burleigh
Gardens development. Borders Coquitlam
River green belt. Close to new Court Complex,
Commuter Train & Shopping Centres.

Asking \$1.925 million for this clear title property.
For sale by owner: Call Frances at (604) 521-7911

Email + World Wide Web For Small Business

\$249 includes: Complete Installation and Setup
Training at Your Location (groups of 1 to 5)
Beginners Welcome

Call (604) 739-7425

Rob Hickling Consulting Ltd.

"Increasing Profitability Through Computer Technology"



聯合出版公司三聯書店

暨集雅齋藝廊

Sino United Publishing (Canada) Ltd. & Tsi Art Chai Art Gallery

Books & Magazines, Stationeries & Stamps, Musical Tapes & CD's
Greeting Cards & Gift Items, Chinese Paintings & Calligraphy
Chinese Writing Brushes, Ink & Paper.

圖書雜誌 賀咭禮品 唱片音帶
文具郵票 文房四寶 字帖字畫

78 - 80 East Pender St., Vancouver, B.C., Canada V6A 1T1
Tel: (604) 688-3785 Fax: (604) 688-0798

<電腦世界> 特約發放點

UNCENSORED!

The hottest adult BBS brings you
XXX quality with no
compromises.

Featuring all the **XXX GIF's!**
GIF's you ever wanted (over 10
GB), loads of

original content, **HOT CHAT!**
and more, much more. Plus: hot
chat with people **ALL FREE!**
from all over the world.

And best of all: **IT'S FREE!**

Absolutely no charges, no credit
card needed, just dial and down-
load immediately.

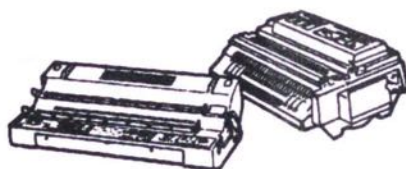
SIMPLY DIAL:

011 852 172 94 919

Over 18's only,
long distance
charges apply

Erotic East

MEGA
Toner Cartridges
laser • copier • fax • etc.



Remanufactured Toner Cartridges.

- We service cartridges from Apple to Xerox
- RAM upgrades, accessories, networking
- Maintenance and Laser Repairs
- DISCOUNT toner for photocopiers
- Macintosh consulting and repairs
- Office equipment & computer cleaning

Apple
Brother
QMS, Xerox
Lexmark
Canon
Sharp, HP
Panasonic
& More!

Laser Printers from Canon, HP, Lexmark and Xanté
call for Best Pricing.

Reduce waste,
Save money!

980-7197

990-0552 fax

satisfaction guaranteed
free pick-up / delivery

DTP Designer Wanted

Computer Player is seeking
production assistant.
PC Photoshop, Pagemaker, CorelDraw.
Fax your resume to (604) 739-3589
No phone call please.



BMP Production

最佳紀念禮品

Special!

家庭錄影帶加
中文字幕和音樂

\$79 起



We add Chinese on your tape
More than 50 Chinese typefaces and effects

中文影視製作

五十多種中文字體可以錄製到錄影帶上

- Customized video production
- Computer animation
- Frame-accurate transfer
- English/Chinese titling

(604) 889-7897

BUSINESS OPPORTUNITIES EXCHANGE

Your Key to Opportunity®

Allows like-minded people to
meet in an informal setting
dedicated to business only.
Our breakfast meetings, held
at New Westminster's
Caribbean Cafe are open to
both BOE members &
non-members.

Cost \$16 Pre-registered \$10
Membership \$65 two years

Phone (604) 521-7911
Fax (604) 521-7944
ET Voicemail 1-604-978-6350

Protron



Computer Consultant

Visit our website or
Call in for a fax of
our latest price list

This Christmas, Let us help you
Surf the net
Visit Out of this world places with a
Multimedia Upgrade
Get your Model a T up to speed
Or get a super duper all purpose super
fast machine

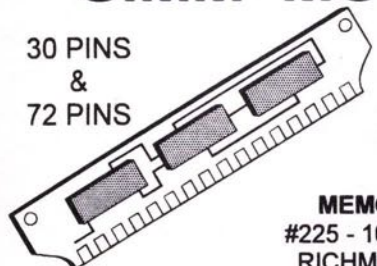
4510 Victoria Drive, Vancouver
Tel: 876-7020 Fax: 876-7207

email: Protron@infoseve.net
http://web.idirect.com/~protron

SIMM MODULE

30 PINS
&
72 PINS

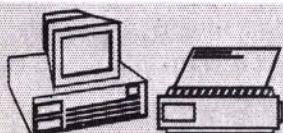
1, 2, 4, 8, 16
& 32 MB



MEMORY HOUSE INC.
#225 - 10711 CAMBIE ROAD
RICHMOND B.C. V6X 3G5

Phone: 821-1178 Fax: 821-1107

ABLE COMPUTER RENTALS LTD.



Ask us about

RENT TO OWN
or LEASE

We Rent IBM Compatibles, 286, 386,
486 & Most Brands of Printers

Tel: (604) 521-6904 Fax: 525-4060

440 CANFOR AVENUE, NEW WESTMINSTER, B.C. V3L 3C9



Over 60 images
for only \$249.00

亞洲美景

FOTO OLK

Asia CD Images

- China
- Hong Kong
- Taiwan
- Macau

GREAT PUBLISHING MATERIAL

可用于報刊,雜誌,廣告手冊

Tel: 271-5477

Warren
Denny

Desk Top Publishing

Photo Manipulation

DIGITAL IMAGING

Photo Restoration

GRANDMA'S CHRISTMAS PRESENT!

"Restore An Old Photo"

737-2133

We Print to continuous Tone film
35 mm • 4 X 5 - Slides and Negatives
FAX 604-737-7311 EMail denny@infomatch.COM

☆ SPARKLE 中英電腦 ☆

Bilingual System (English/Chinese)

Custom Software Design / Programming / Support

軟件服務 程式編寫 文書處理

POS, Inventory, Bar Code, Mission Critical Statistics,
I/E Trading, Internal MIS... Bilingual Documentation ...

dBase, FoxPro, Clipper, VO, DOS/Windows...

Chinese Systems: TwinBridge V3.3, KuoChiao V6.2

Free Initial Consultation

Tel/Fax: 435-2338 (Mon/Wed/Sat 9:00am-9:00pm)

Satellite TV

From \$995

衛星電
視天綫



Call (604) 294-9191

Free Chinese TV

Satellite Internet also available

Home Security Monitor System (CCTV)

COMPUTER TROUBLES?

SHARP NOTEBOOKS & PALMTOPS SPECIALISTS
FACTORY TRAINED TECHNICIANS

We do MORE than just hardware repair,
we are a full service organization involved in
all facets of the computer industry since 1977

• WE ARE AFFORDABLE

• WE ARE FAST

• WE ARE EXPERTS

• WE DO IT RIGHT

"Your place or ours!"

SHARP Authorized Service Centre

MINITRONICS

110-3320 Jacombs Rd. Richmond, B.C.

(604) 278-0783

WESTERN CANADA

FRANCHISE &
HOME BASED
BUSINESS
OPPORTUNITIES
SHOW

March 29, 30 & 31, 1996

EVENT OF THE YEAR!

- Franchises • Distributorships
 - Home Based Business opportunities
 - Business Product & Service Displays
 - Full and Part Time Opportunities
-and much more!

PLUS: Seminars with Various Guest
Speakers on Business Topics

DISCOUNT Booth Rates
until Dec. 31 - CALL NOW!!!

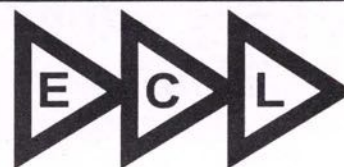
To Exhibit, Call:
WEST-CAN

EXPOSITIONS INC.
(604) 857-7005



FRASER VALLEY TRADE
& EXHIBITION CENTRE
Abbotsford B.C.

Sponsored by:



COMPUTING

Your Computer Department

For
advertising
in
Computer
Player,
please
call

(604)

739-8266



We accept Trade Dollars

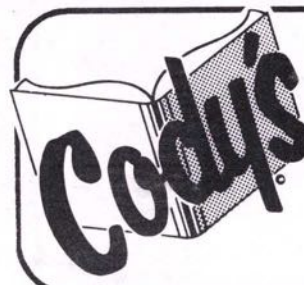
電腦維修 軟硬精通 電腦網路
免費估價 中英服務 品質保證

SERVICE REPAIR MAINTENANCE



"No solution - No charge" Guarantee!

Tel: 266-1124 Fax: 263-9535
7979 Granville St. Vancouver



The Place for Computer Books

Westwood Mall - 3000 Lougheed Hwy, Poco 464-5515
Champlain Mall - 3200 E54 Ave., Vancouver 437-5553

電腦書籍專門店

"The bookseller with experience and knowledge"

Charitable Giving With An Advantage

(Continued from page 65)

pears on your T4 slip you don't have to worry about misplaced receipts.

In addition to these "present gifts" of cash, charitable organizations also receive non-cash assets as donations. These would include such items as land, corporation shares, or art. The donor

would receive a tax receipt equal to the fair market value of the asset.

A growing number of individuals are choosing "deferred gifts" as their preferred method of donation. This refers to gifts arranged today but not received by the charitable organization until some time in the future. Deferred gifts include life insurance policies, wills, annuities, and trusts. They can be relatively easy methods of giving that do not affect your current standard of living.

Life insurance policies can be attractive for both the donating individual and the charity and can be accomplished in two ways. First, the donor can sign over an existing policy that is no longer required for its originally intended purpose. In this case the cash surrender value is tax deductible. Alternatively, a new policy can be purchased

with the charity being named as the sole owner and beneficiary. All premiums paid are deductible for income tax purposes.

Wills or bequests are a popular means of donating to your chosen charity. There are Gifts of Residue, Fixed Sum Gifts or Gifts of the Whole Estate. Such bequests are eligible for tax credits and can considerably reduce estate taxes payable after death.

Money or property may also be transferred to a charitable organization through trust provisions. Under the trust's terms, the individual maintains the use and enjoyment of the property until death. When the property is transferred to the charity, a tax receipt equal to its present

value is issued to the estate.

Remember if you want deductions for 1995 you need to make your contribution by December 31st and ensure the receipt you receive is properly dated.

With proper planning and sound financial advice, it is relatively easy to make a present or long-term commitment to charitable giving without affecting your current lifestyle. Whatever method you choose, seek the advice of your Chartered Accountant beforehand to ensure you receive the tax advantages you deserve. □

About the author: **Richard K. Acton, F.C.A.** is with *Acton Gunderson Chartered Accountants*. He can be reached at (604) 734-4871 or (604) 734-9211.

佳年旅館 the Grange

APARTMENT / HOTEL

165 Grange Ave., Tel: (416) 603-7700
Toronto, Ont. M5T 2V5 Fax: (416) 603-9977

Downtown Toronto
in the Heart of Chinatown
位于唐人街市中心

Minutes from the CN Tower, SkyDome,
Metro Toronto Convention Centre
and the

Canadian National Exhibition

舉步可達商業中心

Steps to Public Transit

Comfortable Studio Rooms with Kitchenette, 4 pc Bath,
Colour Cable TV, Telephone, Airconditioning and
Laundry Room on Every Floor
Parking Available

Economical Rates

Major Credit Cards Accepted

Mandarin and Cantonese Staff

經濟實惠 國粵語服務

Business and Tour Groups Welcome

Ask about our Tour, Dinner & Show

Packages

歡迎商業或旅遊團

Toll Free 1 (800) 567-1893

Living Better With Barter

John Madsen

In many respects, choosing to own a business is a lifestyle decision. People buy or start a business because they want the freedom, the flexibility, the status, and the rewards that go with owning and building a business. All too often the dream ends differently.

At some point people frequently discover the business owns them rather than the other way about, and the employees are the ones with time on their hands and the money to enjoy it.

It doesn't have to be this way for business owners that put all their business resources to work and focus on priorities:

#1. Business people must remember that working harder and longer are poor substitutes for working smarter. Time to enjoy life will be there for business owners who plan and manage for it.

#2. Owners must always keep in mind that where day-to-day business success is concerned, cash flow is king. If there's money in the company to pay the expenses and leave a cushion besides, the enterprise will do well and business owners will have more time when there are fewer crises to manage.

Barter can't help with the first of these other than helping business owners find a business consultant or time management trainer on trade. However, when it comes to conserving a company's vital cash flow, barter itself is king and ITEX is the unquestioned leader in world barter networks.

Virtually every business has some kind of a surplus, whether of product, billable hours, or production capacity.

The surplus may manifest itself on a regular basis, or appear periodically, like the post-holiday doldrums in retailing or the off season slack periods in the travel industry.

Companies belonging to ITEX Bartercard can sell this surplus for Trade Dollars. Frequently, these Trade Dollars are used to pay business expenses, however, that's not the only way they can be spent. Another use is to improve the standard of living of those who devoted their time and resources to building the business in the first place.

Many business owners might be reticent to take a substantial amount of cash out of the business to go on a luxury vacation or to pamper themselves with expensive possessions and entertainments. On the other hand Trade Dollars are earned selling the company's surplus, so Trade Dollars represent sales the company wouldn't have otherwise had.

Partly because it has such an extensive network, ITEX can offer its members a wide variety of vacation destinations, recreation and entertainment opportunities, and luxury products. Many members take advantage of these offerings largely because they see them as earned from their excess rather than from the cash the company needs to prosper and grow.

As the ITEX global network continues to expand, there will likely be many more opportunities to live better with barter. □

About the author: **John Madsen, a Chartered Accountant by profession, is President of ITEX Bartercard and may be reached by E-mail at john_madsen@mindlink.bc.ca or fax 604 521-7944.**

HONG KONG BEAMS SHA TIN RACES TO CLOVERDALE IN DECEMBER.

8-Race thoroughbred cards on these dates:

Friday December 01
Saturday December 09
Friday December 15
First Post 9:30 p.m.

Special for your Sha Tin enjoyment!

- Free Parking & Free Admission starting at 9:15 p.m.
- Big Screen Television Viewing.
- Free Tip Sheet by AJ's Finish Line.
- Sha Tin Racing Index available previous afternoon at Cloverdale.
- Short Order Food from 9:00 - 12:00.

And look at these recent Sha Tin triactor payouts: \$12,022; \$12,467; \$14,702; \$16,340; \$16,487; \$37,869; and twenty more over \$1,600.

You may want to come earlier for live harness races on-track at Cloverdale Raceway. Either way, you'll find everything you need for fun and excitement and great service in the warmth and comfort of The 'Inside Track'.

The Royal Hong Kong Jockey Club invites you to Sha Tin at Cloverdale.

Clip out all three coupons and redeem them at Cloverdale in December

Valid only Friday,
December 1, 1995

Cloverdale Raceway

**ONE FREE
ADMISSION**

ONLY ORIGINAL
COUPONS ARE VALID

176th St & 60th Av, Surrey

Valid only Saturday,
December 9, 1995

Cloverdale Raceway

**ONE FREE
ADMISSION**

ONLY ORIGINAL
COUPONS ARE VALID

176th St & 60th Av, Surrey

Valid only Friday,
December 15, 1995

Cloverdale Raceway

**ONE FREE
ADMISSION**

ONLY ORIGINAL
COUPONS ARE VALID

176th St & 60th Av, Surrey

Demand Print SYSTEM[®]

Intelligent solutions to short-run printing problems.



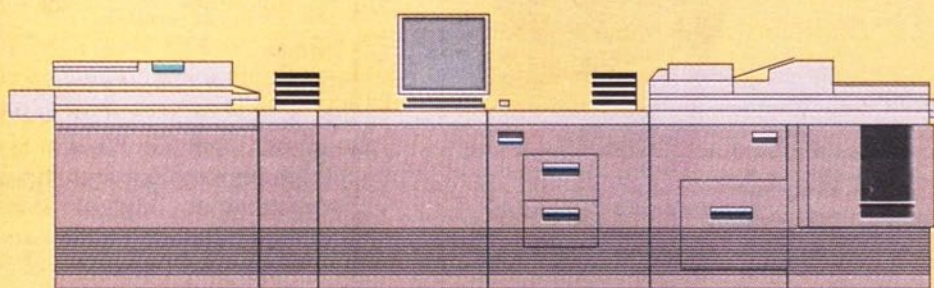
ELIMINATE:

- The cost of labour-intensive pre-press work.
- The set-up costs for reruns.
- Large inventories of printed documents.
- The high cost of colour separations.

Samco Printers Ltd. can image a file direct from disk or modem on a wide variety of paper (including cover weights), at a resolution shy of an imagesetter's. We provide a complete bindery service to turn your file into a great-looking professional product!

Your Mac or PC compatible files can be brought on disk, or sent to us via modem...

BLACK & WHITE



...where we can output black and white files at 600 dpi resolution, on almost any paper stock



...fantastic halftones (Great for newsletters, flyers, and reports!)

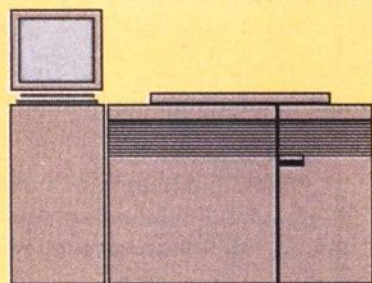


...binding & collating with heavy covers (Technical manuals, short run books)



...or with printed & inserted tabs! (binder pages, catalogues)

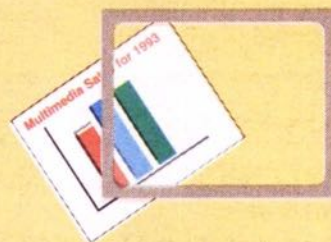
COLOUR



...for output on our colour printer, which excels at continuous tone & spot colour



...making it perfect for short run documents. (Flyers, client wowing comps)



...presentations, & transparencies (Liven up your pitch)



...and signage or POP displays! (11"x17" offers great flexibility)



SAMCO
PRINTERS LTD.

3rd Floor, 830 West Pender Street,
Vancouver, B.C. V6C 1J8
Fax: (604) 681-1775

(604) 683-6991
"Leaders in Digital Printing"

AcerOpen Advantis 75

\$1888

Acer Pentium 75 Open System
8 MB RAM, 256k Cache
Intel Triton Plug 'n Play Chipset
850 MB Enhanced IDE Hard Drive
16550 Serial & Enhanced Parallel
Sceptre 14" 1024x768 non-interlaced 0.28dp
ET4000 1MB PCI Video Accelerator
NMB Novell Certified Keyboard
CSA Approved Minutower
1.44MB Floppy Drive
MS Series II Mouse
Windows 95 or DOS & Windows
Super Shareware Bundle

Leasing Available



Acer



SCEPTRE

Authorized Dealer

Sceptre Monitors

- 3 Year, Over-Counter Warranty
- Flat, Low-Radiation on 15", 17", 21" models
- Low Radiation (EPA/MPR II)

14" CE-61NGL, 1024x768, 0.28dp	\$ 329
15" CC-615GL+, 1280x1024, 0.28dp	519
15" CC-652, 1280x1024, 0.28dp, PnP	549
17" CC-617GL, 1280x1024, 0.28dp	959
17" CC-617GL, 1280x1024, 0.26dp	1,049
21" CS-621, 1600x1200, 0.28dp	2,589
11.4" LCD, CD-1111S, 800x600 DualScan	2,799
10.4" LCD, CD-1111T, 640x480 Active	3,950

Sceptre Soundx Notebooks

- Integrated SoundBlaster on most models
- Integrated Trackball or Glidepoint
- S2000 features removable floppy with options

TS37 SX/25 Mono, 4MB RAM/260MB	\$1,099
TS37 SX/33 DualScan, 4MB/260MB	1,599
S1000 DX2/66 DualScan, 4MB/340MB	2,848
S1000 DX4/100 DualScan, 8MB/540MB	3,448
S2000 DX4/100 DualScan, 8MB/540MB	3,548
S3000 P/75 DualScan, 8MB/540MB	4,132
S3000 P/90 DualScan, 8MB/540MB	4,275
S3000 P/90 Active, 8MB/540MB	5,244



Q.U.A.N.T.U.M

Genesis VP

- Pentium/100 Workstation
- Asus TP4XE Triton, Plug 'n Play
- 16MB System RAM, 256k Cache
- Pipelined Burst SRAM socket
- 1GB Enhanced IDE Hard Drive
- ATI Mach64 or Stealth Video 2MB
- NMB Novell Certified Keyboard
- Genesis Tower Case
- Sliding Doors, 2nd Fan Optional
- 1.44MB Floppy, MS Mouse II
- Windows 95 or DOS/Windows

\$2398

Leasing Available

Genesis VX

- Pentium/100 Workstation
- Asus TP4XE Triton, Plug 'n Play
- 16MB EDO System RAM, 256k cch
- Pipelined Burst SRAM socket
- 1GB Enhanced IDE Hard Drive
- ATI Graphics Pro Turbo 2MB VRAM
- NMB Novell Certified Keyboard
- Genesis Tower Case
- Sliding Doors, 2nd Fan Optional
- 1.44MB Floppy, MS Mouse II
- Windows 95 or DOS/Windows

\$2648

Leasing Available

GENESIS

graphic station

Triton Chipset

Engineered around Asus' Triton chipset board.

Premium Video

Available options include ATI, Diamond, and Matrox VRAM

Plug 'n Play

Plug 'n Play Flash BIOS ensures compatibility & ease of use.

Genesis Case

Dual sliding doors and two fans in a stylish, power case.

3 Year Warranty

A 3-year limited warranty, with a next-business day guarantee.



System Components

Mainboards

486DX2/66 VLB Complete Upgrade Kit	\$ 229
486DX2/66 VLB Complete Upgrade Kit	\$ 299
■ Mixed (30-pin & 72-pin) SIMM sockets	
Acer AP5C Pentium 75-133 PCI, Triton	299
Acer AP5C & Pentium 75	568
Acer AP5C & Pentium 90	714
Acer AP5C & Pentium 100	757
Asus P55TP4XE Pentium 75-167 Triton	359
Asus P55TP4XE & Pentium 75	628
Asus P55TP4XE & Pentium 90	774
Asus P55TP4XE & Pentium 100	817
Asus P55TP4XE & Pentium 120	947
Asus P55TP4XE & Pentium 133	1247
Asus TP4XE Pipelined Burst SRAM upgr	99
Asus ENP4 EISA/PCI & 2xPentium 90	1597
Boards & CPU combos include a free heatsink	

Hard Drives

Fujitsu 540MB, Mode 3	\$ 239
Maxtor 850MB, Mode 3	299
Conner 850MB, Mode 3	299
Seagate 850MB, Mode 4	319
Seagate 1.1GB, Mode 4	349
Quantum 1.2GB, Mode 4	359
Quantum 1.1GB Fast SCSI-2	469
Quantum 2.1GB Capella	999
Quantum 4.0GB Grand Prix	1599
Seagate 4.0GB Hawk	1629
Micropolis 9.0GB Scorpio	4199
Legacy External SCSI case	179
Adaptec 2940 PCI SCSI card	315
Adaptec 2950 PCI SCSI kit	375
Adaptec 3940 PCI SCSI kit	589
Adaptec 3985 RAID 5, 1,0,0/1	1059

Multimedia

SoundBlaster16 Vibra	\$ 109
SoundBlaster32	219
SoundBlaster AWE32 PnP	349
Acer 4xCD-ROM, IDE	219
Toshiba 4xCD-ROM, IDE	199
Panasonic 2xCD-ROM, SB	99
Panasonic 4xCD-ROM, IDE	199
Panasonic 4xCD-ROM, SCSI	309
DoubleSpd Kit (Pan/SB16/Spk)	199
QuadSpd Kit (Pana/SB16/Spk)	299

Modems

Cirrus Logic 14.4 Voice/Fax/Data	\$ 105
Zoltrix Internal 28.8 v.34	199
Supra Express 28.8, internal	239
Sportster 14.4, int	119
Sportster 28.8v voice, callerID, int	309

Network & Connectivity

Windows NT 3.51 Workstation	\$ 395
Windows NT 3.51 Wkstn Upg	125
Windows NT 3.51 Server	875
Windows NT 3.51 Resource Kit	185
Lantastic AI 6.0 DOS/Win	105
Netware 3.12/4.1 CD, 5 user	945
Netware 3.12/4.1 CD, 10 user	2295
GVC NE2000 BNC or 10/T	62
GVC 8-port 10BaseT hub	249
3COM 3C509 ISA BNC or TP	145
3COM 3C590 PCI BNC or TP	255
3COM Linkbuilder-12 TP hub	299
Novell NE2000+ BNC or 10/T	125
Novell NE3300+ EISA Combo	299
Novell NE5500+ PCI Combo	235
Novell EH1200 12-port hub	325
Intel EtherExpress 10/100 PCI	345

Graphics Emporium

Video Accelerators

ET4000 1MB	\$ 149
ATI Graphics Xpression, 1MB	199
ATI Graphics Xpression, 2MB	269
ATI Graphics Pro Turbo, 2MB	429
ATI Graphics Pro Turbo, 4MB	659
Stealth64 Video 2120XL, 1MB	199
Stealth64 Video 2120XL, 2MB	269
Stealth64 Video 3240XL, 2MB	429
Stealth64 Video 3400XL, 4MB	669
Matrox Millennium 2MB, max 6MB	449
Matrox Millennium 4MB, max 8MB	665

Video Capture & Output

Creative VideoBlaster SE-100	\$ 339
Creative ShareVision PC300	849
AverKey, VGA to NTSC ext	249
AverKey II, Video & Audio	349
AverKey III, Genlock	535
AverPro, Video in & out	789
Miro D1, in & out, 24-bit 320x200	449
Miro DC1+, in & out, 1600x1200	699
Perception Video Recorder	2699
PVR Capture Daughterboard	1345
Targa 2000 60fps 20MB RAM	8350

Imaging Software

Calligari Truespace 2.0	\$ 795
Elastic Reality	575
CorelDraw 6.0 upgrade	335
Autodesk 3D Studio v4	3795
Autodesk Animator Studio	825
Macromedia Director	1495
Razor Pro	945
Brother HL641	535
Brother HL660	785
Brother HL1240	1695

Exotic Memory

- Generic
SIMM, SRAM, DRAM, VRAM, PCMCIA
Parity, Extended Data Out (EDO)

- Systems & Notebooks
AST, IBM, Compaq, NEC, TI, Toshiba,
Mac, PowerMac, Silicon Graphics, NEC

- Printers
HP, Brother, Canon, Epson, Lexmark, NEC

We also exchange and upgrade memory,
so call for details and current pricing!

NO SURCHARGE



Quantum Technologies

Building Unique Solutions for Unique Customers

#125, 3751 Jacobys Road, Richmond, BC
9:30-5:00 Monday to Friday, 11:00-4:00 Saturday

All logos & trademarks are registered trademarks of their respective companies. Prices and availability subject to change without notice.

Greater Vancouver (604) 244-5952
Fax Requests (604) 244-5953
Canada & USA (800) 929-8161

Computer Player

電腦世界

Publisher/Editor

Liqin Chen

Associate Editor

Alan Zisman

Mac Editor

Chow Yen Chong

Marketing Director

Jane L. Ding

Contributing Writers

Jim Chow

Swee-Sim Tan

Rick McLaughlin

J.D. Miller

David Aderson

John Hamm

Matthew Durand

Sean Eltrington

John A. Hosh

John Madsen

Richard K. Acton

Advertising Sales

Jamie Leighton

Li Ding

Randy Chaster

Production Manager

Kent Chen

Production Staff

Sherly Ho

Rick Wang

Accounting & Administration

Farida Aini

Distribution

MediaNet Distribution

Computer Player is a monthly bilingual computer magazine published by Our Computer Ltd.

The content of Computer Player is subject to copyright. Material and advertising designed by Computer Player in this publication may not be reproduced in any form without permission. All rights reserved. The opinions expressed in articles are not necessarily those of the publisher.

Computer Player welcomes your suggestions, comments and ideas. Share it with us by phone, mail, e-mail to fax at the numbers or address below:

Our Computer Player Ltd.

900-1788 West Broadway

Vancouver B.C. Canada V6J 1Y1

Phone: (604) 739-8266

Fax: (604) 739-3589

Internet: computer_player@mindlink.bc.ca

CompuServe: 76640,1756

BBS: MindLink! (604) 528-3500 (Log on with the name "Computer Player Guest")

Subscription applications and notices of changes of address must be made in writing to above address.

Printed in Canada ISSN 1188-9462

Canada Post Canadian Publications Mail

Sales Product Agreement No.

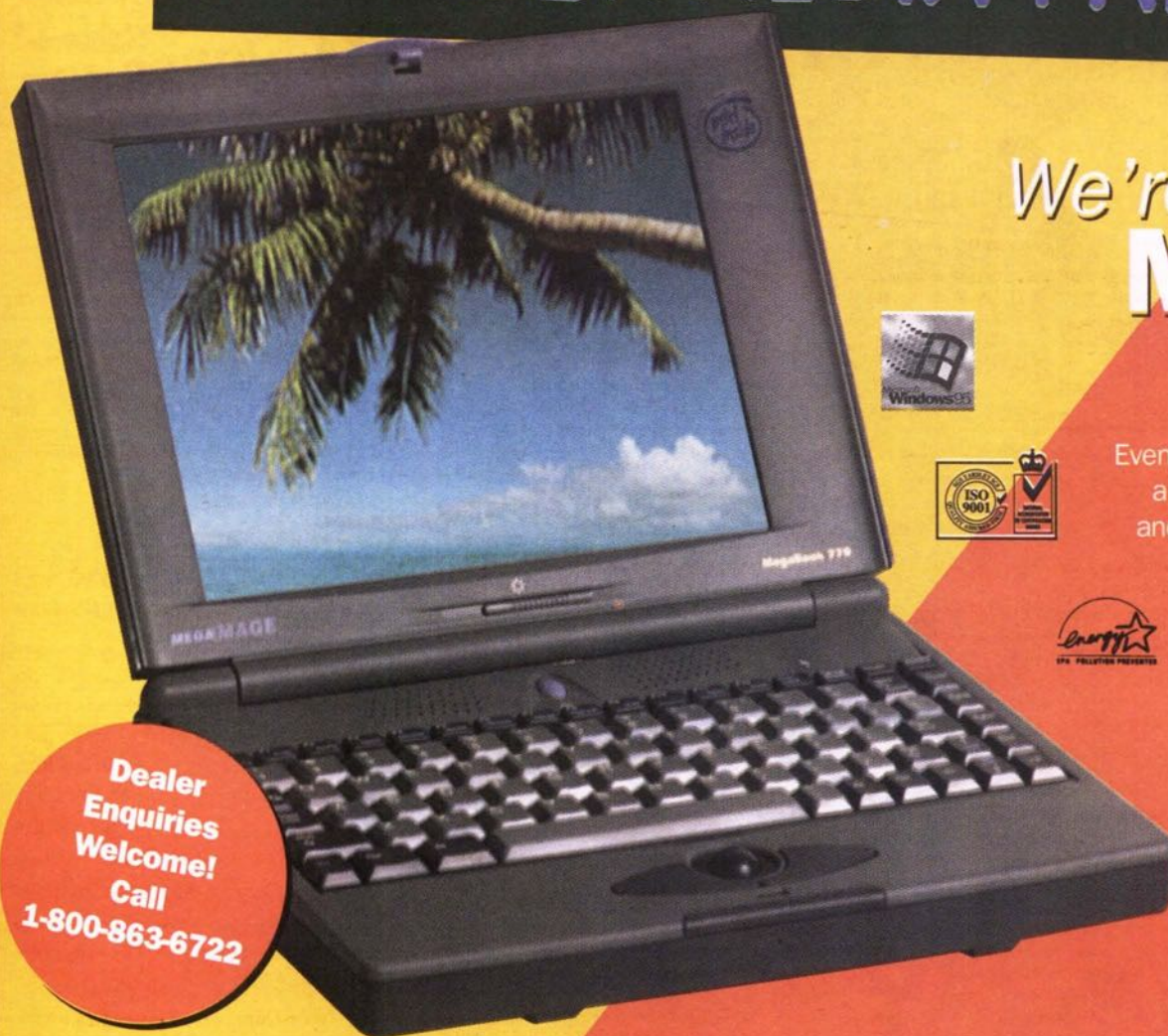
170 437

Postage Paid at Vancouver B.C.

Subscriptions

To have 12 issues of Computer Player mailed directly to your home or office, please send a cheque or money order for \$25.00 to Computer Player Ltd.; U.S. subscriptions please send \$45.00 in US funds; Overseas please send \$60.00 Canadian.

IF PERCEPTION IS REALITY YOUR EYES AND EARS JUST FOUND A MULTIMEDIA PARADISE.



We're referring to the **MegaBook 770**

A FULL FEATURED PERSONAL COMPUTER WITH ALL THE
VERSATILITY YOU NEED FOR THE OFFICE OR ROAD.

Even today's most demanding multimedia applications work like
a charm with the MegaBook 770 - a PC whose colour screen
and built-in microphone and internal speaker system give it an
unbeatable combination of sight and sound!

JUST HAVE A LOOK AT SOME
OF ITS OUTSTANDING FEATURES



Microprocessor:	Intel® 486DX4/100
Memory:	Standard 4MB, expandable up to 36 MB
Storage:	One 3.5", 1.44MB FDD Removable 540, 810MB or 1.3GB HDD
Display:	10.4" colour DSTN or TFT with CCFT-Backlit 1MB video RAM on Local bus
Keyboard:	AT Compatible 84 keys Embedded numeric keys Integrated 19mm trackball
Expansion Slots:	PCMCIA Type II and III slots
Interface/Ports:	One parallel, one serial, Cablemaster Ext. speaker and microphone jacks, ext. keyboard and VGA connector
Operating System:	MS-DOS & Windows 3.11 or above
Audio:	Built-in audio mic and speakers

MEGAIMAGE™

Comox Valley Computers
2440 Cliffe Ave.
Courtenay, B.C. V9N 2L6
Tel: (604) 338-0727

Dexton Enterprises Inc.
101 - 3790 Canada Way
Burnaby, B.C. V5G 1G4
Tel: (604) 433-9866

Dunbar Computers
3577 - 3rd Ave.
Port Alberni, B.C. V9Y 4K4
Tel: (604) 723-6245

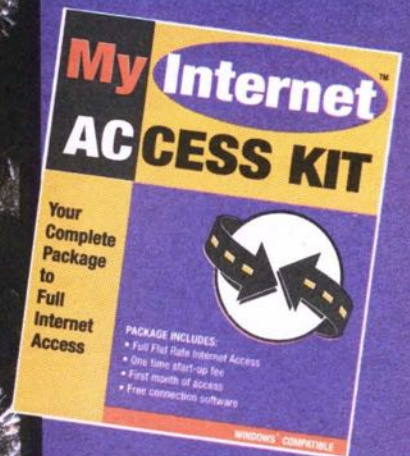
Maple Oak Computer Solutions
Suite 202 - 314 W. Pender St.
Vancouver, B.C. V6B 1T1
Tel: (604) 681-3770

Prince George Computers
805 Victoria St.
Prince George, B.C. V2L 2K7
Tel: (604) 561-1812

R&B Computer Source
651 Main St.
Penticton, B.C. V2A 5C9
Tel: (604) 492-5556

All company logos and/or product names are trademarks and/or registered trademarks of their respective companies

Big things come in
Small
packages.



**YOUR
COMPLETE
SOLUTION
TO FULL
INTERNET
CONNECTIVITY**

This Holiday Season spend Christmas with the rest of the world.

Parents have your kids E-mail us their wish lists at: santa@north-pole.com

Available at:



FUTURE SHOP
DISCOUNT SUPERCENTERS

DOPPLER
COMPUTER SUPERSTORE



And other computer retailers near you.